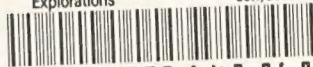


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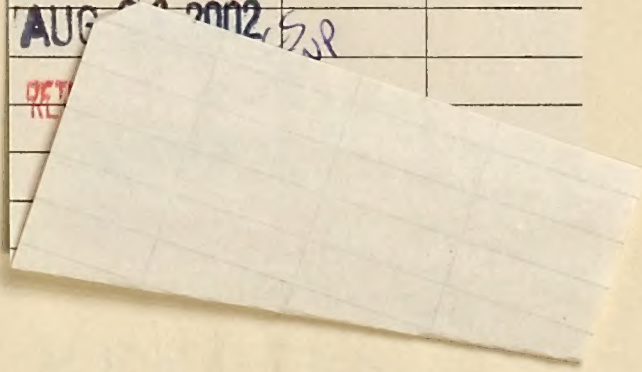
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PEABODY MUSEUM
OF
AMERICAN ARCHAEOLOGY AND ETHNOLOGY
HARVARD UNIVERSITY

MEMOIRS

VOLUME V

CAMBRIDGE, MASS.
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MEMOIRS

OF THE

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND
ETHNOLOGY, HARVARD UNIVERSITY

VOL. V—No. 1

EXPLORATIONS

IN

THE DEPARTMENT OF PETEN
GUATEMALA

TIKAL

REPORT OF EXPLORATIONS FOR THE MUSEUM

BY

TEOBERT MALER

CAMBRIDGE

PUBLISHED BY THE MUSEUM

1911

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NOTE.

THIS report by Mr. Maler completes the series on the explorations which he has carried on for several years under an agreement made with the Peabody Museum. The report is printed without certain plans referred to by Mr. Maler which have not been received from him. This omission is, however, supplied by the Museum Expedition of 1910 (see foot-notes on page 10, *et seq.*). In order to use the plans when reading Mr. Maler's report, the two reports are issued under one cover. To further facilitate reference, a table has been prepared (see page vii of No. 2), giving the names used by Mr. Maler and the corresponding terms used in the report of 1910. A number of measurements were left blank in Mr. Maler's manuscript, and these have been supplied by the Expedition of 1910, all such being given in italic figures.

Mr. Maler's reports were written in German, and it is therefore especially unfortunate that he has not returned the proofs of this and also of the two preceding reports published in Volume IV, Number 3 of these Memoirs. However, the translations were carefully made by two German scholars. —
EDITOR.

EXPLORATIONS

IN THE DEPARTMENT OF PETEN, GUATEMALA.

XXIV.

TIKAL.

“Place where spirit voices are heard.”

END OF MAY AND BEGINNING OF JUNE, 1895. BEGINNING OF AUGUST TO MIDDLE
OF NOVEMBER, 1904.

THE word *cal* (pronounced with the usual *k*-sound) signifies in the Maya tongue, the throat, the oesophagus. When the word becomes *kal*, *kahil* (pronounced with strongly emphasized *k*-sound) it means voices, calls, cries.

The Mayas believe that at midnight (especially during the great festivals), their ancestors return to earth and, adorned as in the days of their glory, wander about in the forsaken temples and palaces, where their spirit-voices are heard in the air. Therefore all important ruins in this land are regarded as enchanted, *encantadas*, and timid people do not like to sleep alone in their desolate chambers.

The Indians of San José and San Andres distinctly and clearly say Tikal, and not Ti-cal, therefore I have decided on the form Tikal.

When I undertook the first expedition to Tikal in the middle of 1895, it was not with the expectation of working up this enormous city of ruins during a first visit, for such an undertaking could not be accomplished without considerable preparation; I only intended to reconnoitre the ground as thoroughly as possible, to make drawings and plans of the most important subjects, and to take photographs which did not require too much preliminary work.

May 21, 1895. I left the island city of Itza and crossed the great lake in a northerly direction in a swaying cayuco. I landed at the little Maya village of San José, where I presented to the alcalde, José María Chata, the order received from the prefect, Isaias Armas, according to which the alcalde was to render me all possible assistance in my difficult undertaking, at the customary rates of payment, and to appoint the requisite number of men to accompany me.

After the business had been discussed in all its details, the alcalde appointed five men to carry my very light baggage and the most indispensable provisions, and to make themselves generally useful at the ruins.

While the men were making their preparations for the journey, I was able to utilize my enforced leisure by visiting the neighboring ruined city of Motul.

On the 25th of May we embarked in a large cayuco obtained from the alcalde and rowed to the village of El Remate at the eastern end of the lake. As there was no wind our voyage was quickly and safely made along the beautiful wooded north shore for the most part. Owing to the calm weather we were able to avoid entering the great bays formed by the promontories, and could cross from cape to cape, thus saving much time and labor. In a storm it is absolutely necessary to hug the shore.

Every now and then at the approach of our dugout, great flocks of cormorants, called *malaches*, rose up. We saw no ducks, but occasionally, high in air, a flight of beautiful pelicans, *alcatraz*. These ugly *malaches*, or *cuervos de agua*, live on fish which they catch by diving and remaining several minutes under water. They have a very bad reputation, for it is said that they merely peck out the eyes of fish which are too large for them to eat. The fish thus rendered helpless soon die miserably. Several times during our passage we did, in fact, see dead fish floating on the water with their eyes pecked out, in seeming corroboration of the statements made by the Indians.

The repulsive *malaches* perpetrate on the water the very same iniquity which the smallest owl of Yucatan perpetrates on land. This little bird by way of a tidbit picks out the eyes of the beautiful ocellated turkeys (*Meleagris ocellata*) while they are innocently roosting at night on the branches of lofty trees. Indians, who accompanied me on my wanderings in the wildernesses of Yucatan, assured me that when out hunting they have occasionally found *cuts* straying helplessly about in the forest with their eyes pecked out, and dying of starvation.

On this expedition I already noticed that the waters of Lake Peten-Itza were in process of rising, for at flat portions of the north shore I frequently observed dead trees standing far out in the water.

Quite late at night we arrived at the cabins of El Remate, at that time inhabited by half-breed negroes, and here we spent the night. The distance between San José and El Remate is estimated at fully ten leagues.

From the cabins of El Remate the path runs N. N. E. through the wilderness to Tikal, which is distant about thirteen leagues (55 km.). Long stretches of the path were so overgrown by vegetation that my men had constantly to use their *machetes* to make progress possible.

At the end of the first day's march, after having crossed a mountain by a difficult pass, we arrived at the Ixtinta aguada, where we spent the night. We estimated the distance travelled that day at about four leagues. At noon of the second day, having covered but two leagues, we came to another aguada called Ixpita, where we rested for about an hour.

This aguada is about half-way between El Remate and Tikal; it is surrounded by small heaps of débris and I also found a *chultun* or rain-well near by. However we continued on our way turning off far to the right, along the tops of a range of hills, at the end of which we spent the night, this time managing to get along with the water we had brought in the *calabazos*¹ filled at the Ixpita aguada.

Descending the range of hills we came to small heaps of ruins, and further on to much larger ones. Late in the afternoon of May 28, 1895, after a three days' march, we came out at Tikal, near the great Palace of the Grooved Walls, in the vicinity of which the Indians pitched their camp. Remaining with the baggage myself, I at once sent the men to the aguada with every available vessel, in order to lose no time in settling the question of water supply.

As we were already approaching the end of the dry season, the surface of the aguada proved to be quite dry, but a hole (*un pozo*) already dug by former travellers, was speedily deepened, until by good fortune the men struck water, which was still contained in the black soil; otherwise, parched with thirst we would have been obliged to retrace our steps the next day to the Ixpita aguada. On the following day I began the inspection of the ruins, intending to have the trees and shrubs cut away from those structures which I wished to photograph, when a great and unexpected difficulty arose. The men from San José whom I had brought with me were capable and willing enough on the water as oarsmen, and on land as carriers of burdens, but they were entirely unwilling to fell trees, and especially to excavate buried sculptures. A certain vicious fellow named Pedro Ek proved especially mutinous. He apparently had a bad influence upon the other men, whom he incited to refuse to work in order to hasten their return to San José.

Not in the least inclined to have my work interfered with and my time wasted by this rascalion, I withdrew from their camp and had my baggage, my provisions and a supply of water carried to the Two-storied Palace which stands opposite Great Temple V toward the north. The central north chamber of the first story with its niches and great stone benches affords the traveller many conveniences.

By changing my quarters to this palace, from which the principal square with its various structures was easily accessible, I saved a great amount of time, while the dissatisfied Indians remained in their camp on the other side of the more remotely situated Palace of the Grooved Walls. Even though they joined me late during the forenoons to help a little or to do nothing at all, and left me early in the afternoon under the pretext of preparing a meal, I still found time between while for a great deal of work on plans and drawings.

¹ The fruit is *calabaza*, while the vessel made from it is called *calabazo*.

Therefore, during the eight days of my stay at Tikal, from May 25 to June 5, 1895, I drew the ground-plans of the five chief temples, also that of my Two-storied Palace and the Palace of Five Stories. I made careful tracings of all the most important of the best preserved incised drawings found on the smoothly stuccoed walls of the chambers in the different structures, for I had fortunately brought an ample supply of tracing paper with me (Figs. 1-10).

Photographs were taken of a few of the best preserved edifices. The sculptured stones were not photographed at this time, since the preparation would have taken too much time.

Taking it all in all, a fair share of work was thus accomplished, and my collection of incised mural drawings is altogether unequalled. To tell the truth, I somewhat overworked and felt a good deal exhausted each night.

Sometimes in my lonely chamber during the night I found myself so surrounded by roaring panthers with whom other creatures, perhaps more harmless, mingled their cries, that I was forced to maintain a great fire at the entrance of my chamber, even occasionally to barricade it with timber. Of course I always slept with a carefully loaded rifle by my side, but otherwise in perfect tranquillity of mind. When I am sleeping in solitude in a ruin or under a tree in the primeval forest, or in a little cave, I am not at all disturbed by the serenades tendered me at the midnight hour by the *Felis onca*, the *Felis pardalis*, the *Felis concolor*, or any of their kin. It always seems to me to be part of the situation, so I listen with cheerful attention. The darkness of the night makes no difference in my feelings, because I am convinced that the same amount of good and evil always exists whether our planet bears us in sunlight or shadow.

As a rule, however, the half-breeds of the country, who are so fond of playing the *valiente* by day, become completely and miserably demoralized with the approach of night. Nothing would induce these heroes to sleep alone in the forest or in a ruin. The genuine, full-blooded Indian, however, preserves his composure by night as well as by day, but even he never likes to be alone.

Another three days' march took us back to El Remate (June 8). It had rained a good deal during our journey, an unmistakable sign that the rainy season had set in.

On our arrival at El Remate I felt very much exhausted, nevertheless I immediately took a bath in the lake, though I trembled with cold in that stormy weather. Afterwards I made a light meal of the food I was able to buy in some of the cabins.

The Indians, impatient to reach their village, were quite willing to row homeward during the night instead of sleeping, especially as the storm had abated. Silently and majestically the full moon rose, but later remained mostly obscured by leaden clouds, while we rowed toward the splendid

evening star. The night was pleasant, cool and calm. The Indians, secretly desiring to receive their pay in spite of all that had happened, began to be more friendly as we approached their village.

Early on Sunday morning (June 9) we landed safely in front of the Casa Real of San José, where the men were paid off and dismissed.

The rate of wages, by the way, was 50 centavos per day in 1895, while on my return in 1904 it had risen to 75 centavos. I observed that in the Department of Peten, as everywhere else, money sinks in value as the price of commodities and wages rise.

Feeling somewhat rested I took leave of the alcalde, J. M. Chata, and of Don Pedro Berges, in order to cross the lake to Itza-Flores before the south wind, so frequently dangerous here, should begin to blow.

June 10, 1904. Coming from Tenosique by way of Paso Real and Sácluk I left my baggage temporarily at Playa de San Benito. After finding a suitable little house in the island city on the opposite side of the lake, I proceeded to move my things thither and began preparations for a second expedition to Tikal, this time under the auspices of the Peabody Museum of Harvard University.

Archaeologists had expressed the wish that the great city of Tikal, hitherto scarcely known, should be as thoroughly explored as Piedras Negras and Yāxchilan. Of course, I was left at liberty to turn my attention incidentally to any other ruins, which I indeed did, but the main object of the expedition, the watchword as it were, was to be Tikal.

All the details of the business were thoroughly discussed with the *gefe politico* of Peten-Itza-Flores, Licenciado Clodovego Berges, who then summoned the alcaldes of San Andres and San José to appear in person at the capital of the district. Here each alcalde received instructions to appoint four capable men from his village, and in case these men wished to return home at the end of a fortnight, to send me four other men in their stead with a fresh supply of provisions. The wages agreed upon for these men were 75 centavos per day, and they were instructed to take with them only sufficient provisions (*bastimento*) for the journey as they would have daily rations of food served them at Tikal. The supply of game would of course be incidental, and dependent upon circumstances.

At 1 peso a day I hired of Don Sóstenes Morales for the whole time of the expedition, a cayuco large enough to hold all the men and their provisions. This cayuco was to remain at El Remate for the use of the returning or newly arriving men.

Thus every contingency was provided for, and we were never to be cut off from communication with the villages by water, which was of the greatest importance for the success of the undertaking. The Indians were made contented and easy in their minds, knowing that the cayuco was always at their service at El Remate whenever they wished to return home.

A modest compensation was privately tendered the *alcaldes* of the villages, for they had been put to much trouble in appointing the right men and having *totopostli* (thin, crisply toasted tortillas) made for us, procuring maize, and other provisions and attending to much other business.

On July 31 I embarked in the great cayuco with the three men I had brought from Tenosique and the most indispensable baggage. We rowed across the lake to San Andres where the *alcalde*, Don Lázaro Cano, received me as in duty bound. The men of San Andres who were to go with us gradually made their appearance, and after the provisions which had been prepared were delivered, we went on to San José to take in the men appointed from that place.

At San José the schoolmaster, Don Rómulo Aldana, who was also the *alcalde's* secretary, was particularly obliging and helpful to us.

All being in readiness we departed the following day for El Remate. This time, however, owing to stormy weather and a high sea we could not venture to cut across the bays from cape to cape, but carefully worked our way along the north shore. We reached El Remate on the second day, where we spent the night in an empty *chiclero* hut, in order to be in good trim for our march to Tikal next day.

As the men carried heavy burdens our progress was slow, and on the farther side of the Ixpita aguada the path was so densely overgrown that the *carga* had mostly to be deposited on the ground, while the Indians hastened forward to clear the way with their machetes.

After a laborious advance of fully six days, we at last came out at Tikal, and, as on the previous occasion, at the palace of the vertically grooved walls (August 8).

Here, without further loss of time, the Indians erected two *champas*, or shelter-huts: one for the men of San Andres, and the other for those of San José. As for myself I spent the first night in a small, partially demolished chamber in the east corner of the palace.

As we were in the rainy season we had no anxiety regarding our supply of water at the aguada, which was only 1 km. distant from the camp.

Subsequently I moved with my Tenosiqueros to the two-storied palace (opposite Great Temple V) where I again occupied my former apartment, assigning two other rooms to the *mozos*. After cutting down the trees in the north courtyard of the palace, light and air entered the chambers and imparted to the whole an air of cheerfulness. The cast-iron corn-mill we had brought along was attached to one of the felled trees, so that the soaked maize (*kum*) could be ground daily and the men need never be without fresh corn-bread (*tortillas*) nor corn-mush (*potsol*), which arrangement was much appreciated by the Indians, but nothing improved the evil disposition of the Tenosique rascals.

Since the men from San Andres and San José could not be induced to

remain more than a few days, the clearing away of vegetation before the five great temple-pyramids was attacked without delay. Owing to the advanced state of demolition of the other buildings, I could only photograph an interior here and there, or the remains of a façade, all of which required but little preliminary work. But it did require a great deal of work only approximately to free from obstructions the five exceedingly high, great temples, with their pyramidal substructures, and crowns of tower-like edifices.

While the first detachment, *cuadrilla*, of workmen, was returning to their villages and I was expecting the second, I began with my Tenosiqueros to prepare the stelae on the principal square for being photographed. Of the stelae above ground, only one (No. 10) was still in an upright position in 1904, while the others, which were still standing when I visited Tikal in 1895 (Nos. 8, 9, 13), had been thrown down by meddlesome chicleros who expected to find treasures hidden beneath. I sent a report of this vandalism to the government officials of Peten, emphasizing the fact that the chicleros had concessions for gathering chicle but not for overturning sculptured stones, or for the perpetration of other mischief.

The second *cuadrilla* having arrived laden with provisions, the preparation of the five great temples was completed, but not without overcoming very serious difficulties (Plates 1-6). Most of the men were afraid to climb to the flat roofs (*azoteas*) of the temples to remove the shrubs, which grew upon them and concealed the roof-combs rising several feet back from their edge, making it quite impossible to take an artistic photograph. Ladders were therefore constructed of long pieces of light guarumo wood in order to reach the roof platforms. Finally one of the Tenosiqueros declared himself willing, for extra pay, to ascend the firmly anchored ladders, and to cut away, as far as possible, the unsightly wisps of vegetation. It was not a hard piece of work, but, I must admit that it was very dangerous and could only be done by a person not subject to dizziness.

In the excavation of stelae buried at an unusual depth, like Nos. 1, 2, 4, and 12, the Indians proved themselves full of clever expedients, and, generally speaking, it may be said that each man of them was worth five Tenosiqueros. It was only owing to the fact that the Indians are unwilling to engage themselves for any length of time that I was forced to bring the vagabonds with me from Tenosique.

All the important preparatory work having been accomplished, the second *cuadrilla* of Indians was dismissed.

Owing to the really astonishing abundance of game in the forests surrounding the ruined city, we were never without a supply of the best imaginable kinds of meat for our meals, and the Indians returning home were able to carry back to their families as trophies from the enchanted city of Tikal, birds and portions of wild swine, partially cooked and slightly smoked over a smouldering fire.

We shot chiefly the crested *kambul* (*Crax rubra*) of which species the male is black as a raven with a white breast, while the female, which equals the male in size, is of a splendid red-brown; the gorgeous *cuts* (*Meleagris ocellata*) and the delicious black *coxolilti* (*Penelope*). In the neighborhood of the aguada the men occasionally shot a *citam* (*kitam*, i. e., $c = k$) or collared peccary (*Dicotyles torquatus*) and by way of variety a juicy roast of monkey was not despised (sometimes *Stentor niger* and sometimes a species of *Ateles*), the men caring more for quantity than quality of the roast.

In photographing the sculptured stones I waited in the case of each one for the most favorable light. A strictly front view was taken of each of the five great temples, and also, for the better comprehension of them, a diagonal view. In addition to the two photographs of ruined façades taken in 1895, I took four more on this occasion. I also took four very successful interior views with long exposure, assisted by magnesium light, as the daylight was insufficient.

Careful ground-plans were drawn of the most important palaces of which measurements had not been taken in 1895. It was absolutely impossible to draw regular ground-plans of all the structures not wholly demolished. But I drew a plan of the city on a large scale and as complete as possible, on which the character of each building was exactly reproduced (only the first story of those of several stories) and its position with reference to the points of the compass approximately indicated. While making the plan we came upon portions of the city which must have remained entirely unknown to previous visitors. Indeed nothing could escape our notice during this work, for every corner, every elevation, and every depression was thoroughly searched and the structural remains noted. We found many stelæ and circular altars, most of them quite plain, and entered them upon the plan together with the structures to which they belonged. Thus this careful search led to the discovery of Stela 17, which alas! is badly damaged, in a spot where no one would have surmised its existence. On the last days of our stay, when we were determining the position of the lesser temples between the two-storied palace of the stepped vaulting and Great Temple IV, we discovered the magnificent Stela 16. This led to the excavation of the largest circular altar of Tikal, which the priests had buried under a metre of earth when they abandoned the city. It is a mythological treasure which will afford Americanists particular satisfaction.

All the following descriptions will be based upon the very comprehensive plan of the whole city. It is unavoidably imperfect in many respects but I can recommend it as extremely useful for the better comprehension of the relative positions of the various structures and stelæ.¹

¹ This plan has not been received from Mr. Maler. We are therefore fortunate in having a plan of the city, made by Dr. A. M. Tozzer and Mr. R. E. Merwin in 1910 during the Peabody Museum expedition of that year, and issued with the report of that expedition in No. 2 of this volume (Pl. 29). This plan can be referred to by the reader of Mr. Maler's report. For this reason and to permit the comparative reading of the two reports, they are issued under one cover. — EDITOR.

As this Maya metropolis covered a square area of more than one Mexican league, that is, from four to five kilometres from south to north and from east to west, the difficult question arises where to begin to describe it, and where to finish.

In describing Yāxhá and Naranjo the question was easily answered, but Tikal presents a very different problem. If, for instance, the description were to begin with the principal square, great difficulties would arise in whatever direction we advanced. It will perhaps be best to begin with the Palace of the Grooved Walls and taking in what can be seen to the right and left of it, advance from that point to the principal square.

Beginning at the Palace of the Grooved Walls, *i. e.*, at the southeast, and advancing toward the principal square.

*The Palace of the Façades with Vertical Grooves*¹ (Plan, Fig. 1).

A rectangular court is enclosed on all four sides by structures which we will call East, West, North and South Structures.

The East Structure. The entire length of the eastern façade of this enormous structure is 58 m., 87 cm.; of this length 875 cm. at each end belongs to the 208 cm. projection. This structure has five chambers in a row on the east side of its main body, each with its own entrance. The two chambers (a front chamber with one in the rear) in the projecting portion at the end of the south structure may be considered as belonging to the latter, since the entrance is on the south side. The two transversely placed little chambers in the north projection are entered from the fifth lateral chamber. Fronting on the court, on the west side, this east structure has five more chambers in a row, the middle one having an apartment in the rear. Two of these chambers contain constructions like large benches. The ceiling vaults are strictly wedge-shaped, truncated at the apex. A sixth chamber also in this row may be considered as belonging to the north structure, since it is entered from the corner chamber of that structure leading into the court. A passage 80 cm. wide runs from the north through the thickness of the masonry between the sixth chamber and the little transverse chamber mentioned above, and, turning with a curve, leads into the court.

The vertical grooves of the east side result from the shape of the base of the east façade, but those on the west side arise from the grouping of large symbolical figures of stone and stucco. The friezes of the two façades fell off long ago.

Doubtless the east structure once had a receding second story, which was supported by the massive partition wall of the first story.

¹ A reference list showing the names of the structures as used by Mr. Maler in this report and the corresponding numbers or names used on the map accompanying the report of the Expedition of 1910 is given in No. 2, p. vii. — EDITOR.

The North Structure. This edifice had a row of chambers, three of which are still intact, opening on the court, on the south. From the middle one of these three chambers a broad passageway, spanned above by fifteen tsapotl logs, leads into a north chamber now wholly demolished. Of the row of chambers on the north side only a few indications still remain.

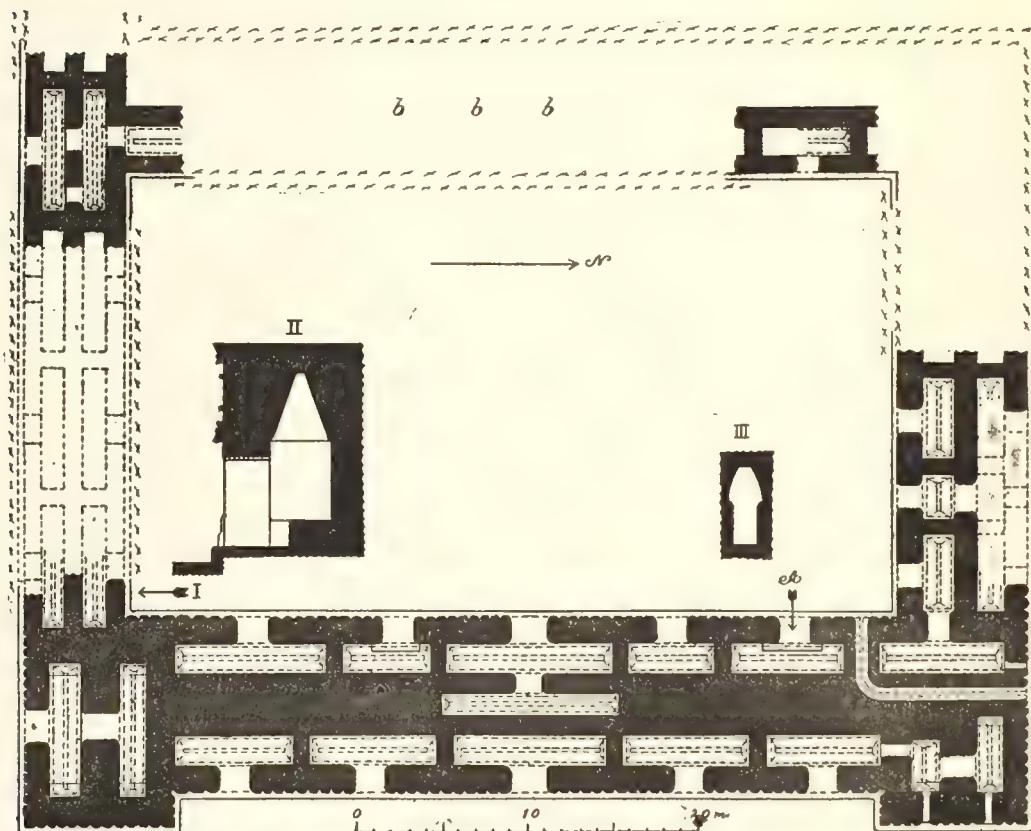


FIG. 1. —TIKAL: PLAN AND SECTIONS OF PALACE OF THE FAÇADES WITH VERTICAL GROOVES. I. Head in frieze. II. Cross Section of inner room (A). III. Cross Section of northeastern passage. *b b b*. High mounds of debris formed by fallen edifice of two stories.

The vertical grooves on the north side (toward the northeast corner) are formed by groupings of large symbolical figures, which are very interesting to behold, but which are too much impaired to be successfully photographed.

To the north structure belonged a receding superstructure now wholly ruined, with entrances on the north, while the side toward the court had only small, narrow windows — mere air holes.

The South Structure. This structure consisted of a double row of chambers, most of which are now demolished. Probably there were six chambers in each row, but it should be noted that the arrangement of the two chambers in the southeast corner differs from that of the others, as is shown on the ground-plan (Fig. 1).

In the angle of the court formed by the joining of the north side of the south structure with the west side of the east structure, a bit of frieze still remains, displaying a fantastically elaborated head. The lower cornice of this frieze is placed 57 cm. lower than the cornice of the frieze on the west side of the east structure. In fact, it must be borne in mind that the horizontal lines of all four structures do not correspond, some portions being placed a little higher, and others somewhat lower. The south structure apparently had no second story.

The West Structure. A stupendous mass of débris is all that remains of what must have been a structure of imposing dimensions, which unquestionably had a second story. Only on the east side, opening on the court, a single chamber of the first story is partially preserved. Nothing is known of the purpose of this vast palace which must have contained more than fifty chambers in the four wings.

Examining the territory to the east and southeast of the Palace of the Grooved Walls, we saw heaps of ruins here and there, doubtless of suburban buildings. The densest collection of stone buildings, however, is toward the west and northwest, in the direction of the principal square.

The Palace of the Rear Chambers and Great Stone Benches (Plan, Fig. 2).

Passing along the south side of the south structure of the Palace of the Grooved Walls, an enormous mound, formed by the ruins of a two-storied edifice, is soon reached. The south side of the structure faces a ravine and the north side looks out upon an extensive plaza. Only the south part of the first story is sufficiently preserved to permit of drawing a ground-plan. The northern longitudinal half is entirely in ruins and the second story, which was supported by it, has entirely fallen down.

The south façade, which faces exactly south by the magnetic needle, has three chambers in a row, each with an entrance on the south. The middle chamber is 851 cm. long and 218 cm. broad. The height from the floor to the truncation of the wedge-shaped vaulting, which is a little out of plumb, is 443 cm.

This middle chamber opens into a chamber in the rear, having a broad stone bench placed lengthwise, and narrow openings on either side leading into small lateral chambers with floors on a higher level. These rear chambers all have truncated, arched vaultings with gracefully curved lines. The front chambers, on the right and on the left of the middle chamber, both open into rear apartments, each with a large stone bench, and each with a door on the side leading into small lateral rooms with raised floors.

The east and the west side of the south half of this palace have each a transversely placed chamber with two small chambers in the rear. One

of these rear chambers in each group is connected with the adjoining chamber on the south side, as shown on the plan.

The length of this palace measured on the south side is exactly 41 m. The friezes of the façade were, alas! long ago destroyed by the network of roots formed by a too luxuriant vegetation.

The northern longitudinal half of the first story of this palace is a mass of débris from which the remains of a wall or the angle of a chamber protrudes here and there. The architectural arrangement of this north half, with certain deviations, was doubtless the same as that of the south half.

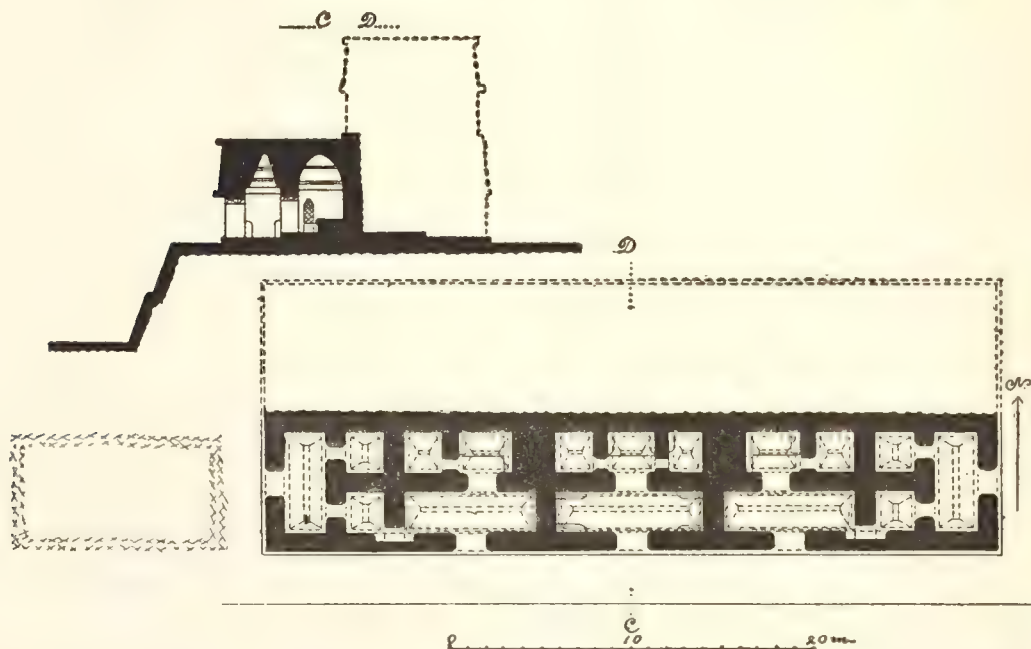


FIG. 2. — TIKAL: PLAN AND SECTION OF THE PALACE WITH REAR CHAMBERS AND GREAT STONE BENCHES.

The second story, resting on the north half of the first, must plainly have had entrances to the front chambers on the south, since the *azoteas* or flat roofs of the vaulted ceilings of the south half of the first story form a spacious platform in front of those chambers. It must be assumed that a wooden stairway led up on one side to the platform, since no vestiges of a stone flight of stairs were discovered.

The number of chambers of the first story of this palace may have been $2 \times 16 = 32$. Supposing the number of rooms in the second story to have been only ten, that would bring the total number of chambers in the palace to 42 before its demolition. This edifice might possibly be regarded as an assembly house of the community (*calpulli*) constructed on a very grand scale.

Let me say, by the way, for the benefit of future travellers, that if they do not wish to take up their quarters in the spacious chambers with stone benches in the east structure (west side) of the Palace of the Grooved Walls,

they can make themselves very comfortable in the south apartments of the palace just described. The most valuable baggage can be conveniently placed on the benches while at the same time a resting-place can be found on them for one's self, and any one of the little side rooms can easily be converted, by means of a curtain at the narrow entrance, into a dark chamber for photographic purposes. Besides, the distance to the aguada from this palace (as also from the Palace of the Grooved Walls) is not unreasonably great, and the labor of carrying water could thus be minimized.

Ascending in a northwesterly direction from the *planada* on which stands the Palace of the Rear Chambers and Benches, the explorer comes to a stretch of causeway leading to terraces on a higher plane, crowned by a confused mass of edifices varying in size, which it was very difficult to incorporate with clearness in my general plan of the city. The rooms of all these edifices — as far as they are not demolished — display excellent arched ceilings of stone and frequently the entrances are spanned at the top with hard round timbers of *chictsapotl*, or by heavy beams of the same species of wood.

The Palace of Five Stories (Plan¹). The most stupendous edifice of the whole group is the Palace of Five Stories, which may be regarded as the sacerdotal palace belonging to Great Temple V opposite, toward which its south façade is turned, the temple itself facing north. A deep ravine lies between the two groups of buildings.

Not counting a first lower terrace, which serves the chambers of the first story as an esplanade, let me say once for all, that the first two stories are set against the hill rising in their rear, and only the last three stories rise free on all sides.

A retaining wall rising from the bottom of the ravine supports a terrace which, in front of the middle portion of the first story, forms a platform with a projection of about 8 m., diminishing in width on the right and on the left, where there are ascents to the next story.

First Story. That portion, which in relation to the whole structure may be regarded as the central part of the first story, had a gallery, now wholly ruined, with an inside length of 20 m. 65 cm., and a width of 140 cm., with three entrances on the south front. There are two inner chambers leading from this gallery, one 1180 cm. in length with two entrances, and the other 535 cm. long with but one entrance. *Tsapotl* beams, more or less decayed, still span the entrances to the inner chambers, but are without ornamentation.

There were apparently no chambers adjoining the right side (the west) of the central portion, but on the left (the east) the row of chambers was doubtless continued with slightly different arrangement, and they are now in a complete state of demolition.

¹ This plan has not been received from Mr. Maler. See plan, Figs. 22, 23, in Report of 1910 Expedition in No. 2. — EDITOR.

Second Story. Receding the whole width of the row of chambers in the first story, rises the second story; that is, the façade wall of the second story rests upon the partition wall of the double row of chambers in the first story, so that the azeota of the vaulted ceiling of the front chambers of the first story forms an esplanade for the second story.

The central part (in relation to the entire structure) of this story also has a gallery in front 20 m. 50 cm. long by about 140 cm. broad with three entrances facing south leading into three inner chambers. This central portion has one or two adjoining apartments of the usual size on the right (the west), now so entirely destroyed that their dimensions can no longer be definitely determined. On the left (the east) there was an adjoining double row of chambers now partially ruined. It therefore remains doubtful whether the front chambers corresponding to them did not likewise form long galleries. It can safely be asserted that the rear chambers corresponding with these in front differed in arrangement from those described above, which can be clearly proved by examining the rear chamber with the transversely placed little bench and two entrances.

Third Story. Receding about 10 m. from the façade wall of the second story rises the façade of the third story, the central part having a gallery in front 18 m. 97 cm. long, and 197 cm. broad. There were also three entrances on the now wholly ruined south side (front) leading to this gallery. From the middle of its rear wall, 145 cm. in thickness, a passageway 178 cm. wide, spanned by five beautifully decorated beams of tsapotl wood, leads to a central rear chamber 782 cm. long by 152 cm. broad. At each end of the rear wall of the gallery a narrow opening leads into a small rear chamber, one chamber being 241 cm. long and the other 260 cm. The transverse partition walls of these lateral chambers, which divide them from the central rear chamber, have a thickness of 182 cm., and each has a narrow low opening into the central chamber. As the wide entrance to the central chamber is filled up with débris and the floors of the three rear chambers are covered more than half a metre deep with earth, it is necessary to crawl through the low entrance on one's stomach in order to reach the middle rear chamber and the beautiful tsapotl beams of its main entrance. The archæological enthusiasm of former explorers of Tikal not having been sufficiently great to induce them to crawl on their stomachs into these rear chambers darkened by masses of débris, these richly carved tsapotl beams have hitherto escaped their notice, but not the notice of mischievous, greedy treasure seekers, who recently tore out and carried away the finest of the ornamental beams.

It is very difficult to understand how so much soil could get into those rear chambers, a circumstance which has been observed in several other palaces of Tikal. It is quite comprehensible that the wind, bats and other little creatures can convey a certain quantity of dust and rubbish into these palaces, which would, in the course of centuries, amount to about 10 or 20 cm.

at most. But a regular body of soil half a metre high spread out perfectly even remains an unsolved riddle, where broken down vaultings, débris, etc., do not come into question.

In order to make a thorough examination of these ornamental beams, I had some of the rubbish cleared out of the main entrance in 1904, thus admitting more light and permitting us to slip in and out with greater ease. There were formerly exactly five of these lintel beams richly carved on the underside. Two of them, of course the best preserved ones, have been carried away and only three of them, riddled by *commehen* larvæ and half decayed, are still in place. But even from these, pieces of the carving have been cut away here and there; in fact, their state of demolition was such that it was useless to think of photographing them.

The carving in relief seems to represent a woman of rank presenting the high priest with the sacrificial gift of a well-fattened turkey. The scene here represented illustrates the custom of making sacrificial gifts to the revered or feared (?) priest in the shape of ducks, turkeys, fish, fruits of every kind, bags of maize or cocoa, perhaps even gold ornaments, variegated feathers and precious stones. It can easily be imagined that representations like these caused the mouths of the Spanish priests to water! They consequently regarded it as a most urgent problem how to act so that this inexhaustible stream of all the good things the heart desires should henceforth no longer flow for the benefit of the despised priests, devoted to the devilish cult of false gods, but for the benefit of themselves, the worthy heralds of the only true and all redeeming faith — a problem whose successful solution has long since passed into history.

According to the chicleros, who certainly ought to know, the beautiful tsapotl beams were removed by Calistro Barrio, a Spanish business man heavily in debt, assisted by the chiclero Emiliano Vasquez and a master shoemaker (*sic*!) of Flores, whose name I have forgotten. But to the shoemaker fell the task of cutting away with a hatchet the beams at the back of the carving, in order thus to reduce their great weight, and make possible their transportation to Belice. Into what hands the two beams finally fell, nobody knows. At any rate it is to be regretted that this wood-carving, so very interesting in its unimpaired state, should have fallen a prey to the ignorance of a bankrupt tradesman, a usually drunken chiclero, and a shoemaker!

The third story of the palace (which to be consistent we must call its central part) has an elongation on the right (or west) in the shape of an apparently entirely solid structure, which projects three metres on the south side, and extends very nearly to the east side of the neighboring palace where I lived. The rear of this west wing faces the north court and has no projection, but is a continuation exactly in line with the north side of the third story. At the joining of this rear wall with the east wall of the structure

forming the west boundary of the court, there remains an interesting fragment of the frieze, which I photographed with great difficulty, for that architectural relic has grown quite black in the course of time (Plate 7, Fig. 1).

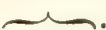
The fragment of frieze displays a fantastic head surrounded by scrolls, and designed in such a way that a small human face appears below the nose which forms a tall pyramidal head-dress for the lesser face.

Where the latter addition joins the western end of the central part of the third story, it naturally covers up the frieze which formerly was entirely open, and therefore the symbolic design is very well preserved. After removing some stones of the already half ruined masonry of the added wing, I made a drawing of the head and added it to the ground-plan.

From the court I took a very good photograph of the north side of the central structure, which distinctly shows how the rear walls of the third, fourth and fifth stories have been superimposed one upon the other (Plate 8, Fig. 1). A perfectly plain course of projecting masonry can be distinguished, upon which rests the plain rear wall of the third story. The north frieze has an equally plain cornice above and below, and the smooth surface of the frieze itself is interrupted five times at regular intervals by the symbolic design described above.

To the east end wall of the middle part of the third story there had also been added a massive wing, which measured only about 196 cm. in length, and probably covered up the frieze design on that side. Above the three entrances of the south façade the frieze was very probably more elaborate, but since that façade has fallen down nothing can be known concerning it.

On the photograph the plain rear wall of the fourth story can be distinguished, with its equally plain frieze, slightly projecting and slightly sloping.

Of the ruined fifth story the lower portion of the rear wall can be distinguished, having a shallow niche in the middle spanned by a brace-shaped arch .

An additional structure on a considerably lower level is joined to the east side of the massive wing of the middle part of the third story. It recedes on the north side and consists of two transversely placed chambers, one in front with an east entrance, and another in the rear. These two transversely placed chambers have gracefully vaulted ceilings and are stuccoed with exceeding smoothness and neatness. Coalescent with these, and receding to a distance corresponding to their length, this time on a somewhat higher level, is the extreme east wing, consisting of two front chambers. Each had a doorway on the north side, and each a chamber in the rear. These coalescent wings forming right angles with the main structure, face a small, slightly sunken north court, which is also enclosed on the other two sides by what were once pleasing little structures.

At the risk of exhausting the reader's patience, I must mention one more architectural complication. Over the two attractive transverse chambers described above — but retreating on their north side — are built two small longitudinal chambers. They are a front chamber entered from the north, with another chamber in the rear. (Of course, an apparently confused architectural description like this can only be comprehended by consulting the plan where everything is clearly shown.)

Fourth Story. Quite unattached on the east and west, the fourth story rises over the central part of the third story, receding only a very little on the south side. It consists of a gallery in front (now demolished) with three entrances on the south, and a second gallery very well preserved and with three doorways from the front gallery. In front of the forward gallery there is room only for a narrow esplanade, and it must be taken for granted that a wooden flight of stairs once led up to it from the broad platform below, which spreads out in front of the central part of the third story.

According to my measurements the inside length of the forward gallery amounts to 15 m. 32 cm., but it is only 110 cm. wide. The height from the floor to the truncation of the vaulted ceiling is 380 cm.

Following the general rule, the floor of the rear gallery is raised 46 cm. It is 14½ m. long, 163 cm. broad and 378 cm. high. A large bench, or stone bed, is near the east end of the gallery, and another with a wide step before it at the west end. Placing my photographic apparatus on this latter bench I succeeded with long exposure in taking a very fine interior view of the rear gallery looking from west to east (Plate 10, Fig. 2). The picture plainly shows the agreeable form of the truncated wedge-shaped vaulting, and the round tsapotl beams inserted at regular intervals, with a simple ornamental device in the middle. The strong tsapotl beams spanning the entrances are also well preserved.

On the smoothly stuccoed walls there were numerous incised drawings, dating from ancient times. This gallery, however, is frequently inhabited by tramps who have the bad habit of scratching off with their hatchets the damp, sticky moss which forms on the walls during the rainy season and adheres to any one coming in contact with it. Thus the incised drawings have been so badly injured that they cannot be copied. This sticky, blackish-green moss, by the way, turns a dull, pale green in the dry season, and becomes dry and crumbly, when it can be easily brushed off, during which process very extraordinary incised drawings come to light.

Fifth Story. The fifth story is half ruined but still gives evidence of having once consisted of a single long gallery with the usual three entrances on the south side, in front of which the terrace roof of the fourth story front gallery forms a convenient esplanade. It may be assumed that the length of this topmost gallery, whose side walls retreat about one metre at each end, is about two metres less than the corresponding gallery below.

Here again we must assume that a wooden stairway, running obliquely across the façade of the fourth story, led from the narrow esplanade of the latter story to the esplanade of the highest story; or else that in front a wooden stairway ran from the spacious platform of the third story up to the esplanade of the fifth.

Allowing about $5\frac{1}{2}$ m. in height for each story on the south side of the central part, the total height of the five stories would amount to $27\frac{1}{2}$ m. measured from the lowest far projecting terrace to the topmost edge of the frieze of the fifth story.

The number of chambers in all the five stories, counting only those in the central part, amounts exactly to $3 + 4 + 4 + 2 + 1 = 14$ in all.

It is far more difficult to make an estimate of the number of chambers in the wings added on the right and on the left of the first, second and third stories. The extension added on the left of the first story may have contained eight chambers. The left wing of the second story may likewise have contained eight (or only six, if, instead of four smaller chambers in front, there were two fairly large galleries). The right wing of the second story had perhaps only one or two chambers. As to the third story it remained doubtful whether the massive right wing at the south side contained a chamber at all. On the other hand it can clearly be proved that the left wing, which is on a different level, contained $2 + 4 + 2$ chambers, two of which are upper rooms, and their entrances do not face the south, but some of them the north and some the east. This calculation would result in a total of about 24 chambers for all the added wings.

The five storied Sacerdotal Palace with its populous architectural surroundings, which should no doubt be regarded as the Acropolis of Tikal, in all probability afforded a magnificent spectacle from the terraces forming the approach to Great Temple V on the other side of the great ravine, or from the platform formed by the truncation of the temple-pyramid.

The north court belonging to the Palace of Five Stories is also enclosed on its north and east sides by structures of no inconsiderable size, as can be seen by consulting the general plan of the city. A passageway, in the northwest corner of the court, leads into the north court spreading out before the north façade of the neighboring palace, which likewise faces Great Temple V.

The Palace of Two Stories opposite Great Temple V, where I lived in 1895 and 1904 (Plan, Fig. 3).

Seen from the north court this structure rises upon a massive foundation about three metres in height with a wide central stairway. Toward the south the edifice is supported by high retaining walls built into the hill and reaching down into the south ravine.

The receding central part of the first story had three chambers with

doorways on the north. The south side also had three compartments with entrances on the south not corresponding in arrangement with the chambers on the north side, but, as can be seen on the ground-plan, displaying certain deviations. I would call especial attention to a transversely placed cham-

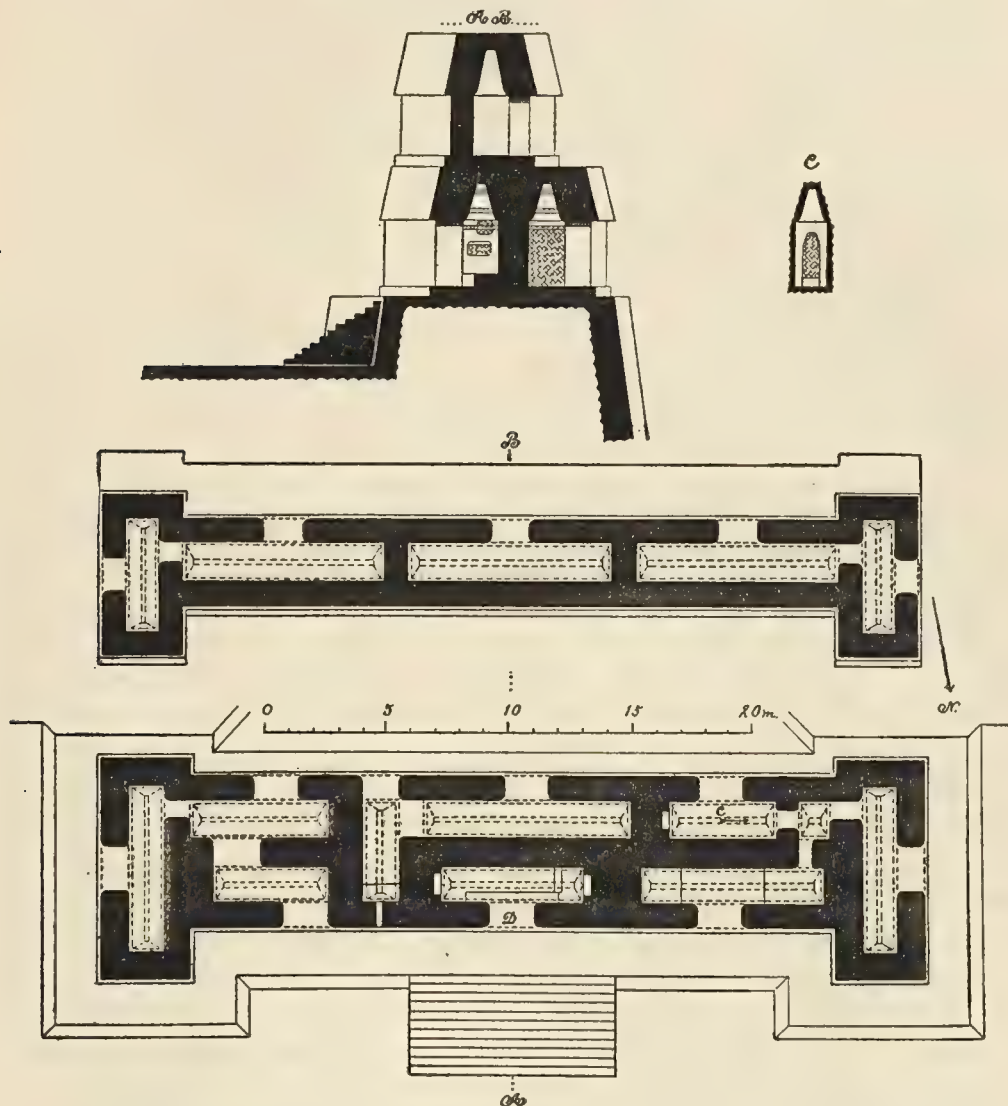


FIG. 3.—TIKAL: PLANS AND SECTION OF PALACE OF TWO STORIES OPPOSITE TEMPLE V. D. Habitation of T. Maler, 1895 and 1904.

ber adjoining the central apartment on the east, with a south entrance and a stone bench at the north end where there is also a small opening for ventilation. This double row of apartments in the central structure is finished off at either end by a transversely placed chamber each with an entrance on the east or west, as the case requires, and each connected with the adjoining longitudinal chamber on the south side by a narrow doorway.

The entire length of the first story, measured from outside wall to outside wall of the transverse end chambers, is exactly 33 m. 60 cm.

The central north chamber has niches at each of its narrow ends and a large bench-like construction occupies almost the entire space. Since this great stone bed was extremely convenient both as a couch and as a table for my most important belongings, I occupied this chamber in 1895 and 1904. Upon this extensive stone bench during the nights of 1904 — the necessary supply of water having been brought from the distant aguada — I developed my negatives taken on celluloid films and they all came out most satisfactorily. In this country it is never well to let much time intervene between taking a negative and developing it, otherwise the risk of losing one's work is very great.

The photograph of this chamber taken in 1904 shows it from west to east, from the observer's point of view (Plate 10, Fig. 1). The picture plainly shows the great stone bench on which I worked and slept, the niches in the narrow end, the steep sides of the wedge-shaped, and, as usual, truncated vaulting with the horizontally inserted cross-beams, and also the entrance spanned by eight tsapotl beams.

The photograph of the exterior taken in 1895 (Plate 9, Fig. 1) shows the entrance to the central chamber, and in the frieze a fantastic head with proboscis, flanked on either side by scrolls and surmounted by ornamental work now become indistinct. This view also shows the rear wall of the upper story. The three Indians, who were not particularly obliging at that time, but whom I have long since forgiven, enliven the foreground. The friezes over the other two entrances on the north side also have conventionalized heads. Above the doorways on the south side were composite designs of figures in stucco (not gigantic heads) now badly mutilated. The retaining wall on the south side affords but a narrow esplanade in front of the entrances to the south chamber, which could only have been used by people with very steady heads. It is, however, probable that formerly the esplanade was rendered safer by a wooden railing.

The walls of the north chambers are smoothly covered with the finest white stucco and display a number of extremely interesting incised drawings of which I had already made tracings in 1895.

The second story rises above the north chambers and the two end apartments, leaving the north side and the sides of the two narrow ends quite without an esplanade. On the other hand, the flat roof of the south chambers furnishes a broad esplanade for the receding chambers on the south side of the second story.

The second story has a row of three chambers, each with an entrance on the south. The chambers at the end of each row have a little doorway leading into the transversely placed chamber. It must be taken for granted that a wooden flight of steps on the outside led up to the transverse cham-

bers, or to the south esplanade, since there is no vestige of a stone stairway remaining.

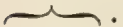
If the most obstructive of the intervening trees were removed, the terrace of the south side of the second story would offer an excellent position for photographing Great Temple V, which faces the north. The light, however, is favorable only from May to August, when the sunlight falls from the northeast in the morning.

The first story of this palace has nine rooms (not counting a little inner recess) and the second story has five, a total of fourteen chambers.

As can be seen by consulting the plan of the city, the north court of this palace is enclosed on the other three sides by interesting smaller structures. The east side, as has already been said, is closely adjoined by that wing (now in ruins) of the Sacerdotal Palace, which has a grotesque head at the right angle formed by its coalescence with the third story. Leaving a passageway open in what might be called the extension of the wing just mentioned, there is a little structure with a central chamber (entered from the east) and two small end chambers. The northern end chamber is gracefully vaulted, having a north entrance and a bench against the partition wall which divides it from the central chamber. From this little chamber there is a splendid view of Great Temple I and its huge pyramid. It is seen strictly in profile, while the principal square of Tikal lies far below.

Parallel with this three-chambered structure lies another building also with three chambers, but these are of equal length and are placed one behind the other. The front apartment has three entrances on the east side, and from it three doors lead into the central chamber and three more into the third, while on the south side a narrow doorway opens into both the second and third.

Also parallel with the three-chambered structure, but to the rear of it, runs the east side of the nine-chambered structure, which had a tenth room added later, now wholly destroyed.

The arrangement of the nine chambers in this shape  can be distinctly seen on the general plan. These apartments with their well defined vaultings are still, for the most part, in a fair state of preservation. At the narrow end of one of the east chambers (where I have put an N on the plan) there is an interesting double niche spanned by a brace-shaped arch . From the rear (north) platform of this structure, that is, from the edge of the eminence on which it stands, the best diagonal view of Great Temple I can be gained, if men enough can be secured to cut down the intervening trees.

The southwest corner of the court is bounded by a small temple with a little pyramidal substructure. It is placed somewhat diagonally, so that the stairway and façade face northeast. This temple has only two small apartments now in ruins, one in front with an entrance in the façade, and an ad-

joining one in the rear. The outer walls of the temple display vertical stripes.

Between this temple and the tenth room now in ruins, which was added to the nine-chambered structure, a long descent leads to a court bordered on the east by the two buildings last mentioned, while on the south (on the edge of the south ravine) lie the remains of a ruined edifice. A long heap of ruins bounds the north side of the square, and was formerly a single row of chambers with entrances on the south side now fallen, while the rear wall, facing the principal square, is still standing. The west side of the large court is closed in by a quadrangular edifice in the southwest corner, and the wing of a structure built with a rectangular turn, its ruined chambers having naturally faced the court (the east) while those of the other wing faced the principal square (the north). The rear wall of this latter wing facing the ravine is perfectly preserved. Also much of the retaining wall at this angle of the ravine is still in fair condition.

Before we enter the principal square and proceed with the description of its imposing architectural boundaries, it would seem to be the wiser course to retrace our steps to the Palace of the Grooved Walls, and then, after a brief digression to the northward, to turn about and advance from the east to the rear slope of the pyramid of Great Temple I.

Not far from the north side of the northern portion of the Great Palace of the Grooved Walls several small ruins lie scattered about. But first keeping as well as may be to the north, down below on the *planada*, we come to a square, horizontal rock, rising about one metre above the ground and constituting a landmark which indicates the right way to the aguada, lying further off to the north.

In these lowlying stretches of level ground (*planadas*) in the direction of the aguada, there are still numerous lemon and sour orange trees to be met with, the only trace left of that baleful band of Yucatecs, who, flying from the wrath of the Mayas, settled here during the second half of the nineteenth century to the great detriment of Tikal. The thirsty traveller, intent on preparing a refreshing draught, can always obtain a supply of oranges and lemons by sending here for them. These two varieties of trees, by the way, are almost the only ones that successfully resist for any length of time the tremendous encroachment of tropical vegetation on abandoned human settlements, while all other plants cultivated by man are soon overpowered and effaced.

Before leaving the subject of the aguada, important though it be, I must not omit to give the comforting assurance that even though it is apparently dry during the last months of the dry season (February to May), the traveller must not allow himself to be disconcerted by the lamentations of the ever discontented, ever homesick native servants, "no hay agua! no hay agua!", because an excavation, two or three metres in depth in the

black earth of the *aguada*, will invariably strike a supply of cool, fresh water.

Turning toward the west from the flat rock, important only as a landmark, the explorer comes to a gently ascending, broad street sloping on either side down to the *planadas*. Near the eastern end of this street lie two small ruined temples side by side. After these come the east (rear side) of a tall edifice of three stories, and diagonally opposite this structure, to the right, lies a large rectangular terrace.

The Three-Storied Structure with Three Chambers in the Top Story. Though this edifice is built on a plan differing materially from the typical temple construction of Tikal, I nevertheless believe that the three chambers in a row in the top story were dedicated to the worship of deities. The façade of this remarkable structure faces the west. From the level ground in front of it a broad stairway of stone leads up to the first platform. Half way up the stairway is interrupted by a little projecting chamber, still well preserved, with an inside length of 215 cm., its width being only 90 cm., and its height, from the floor to the truncation of the little wedge-shaped vaulting, 240 cm. A niche, 50 cm. wide and 127 cm. high, is built into the rear wall (the longitudinal wall of the interior). It is quite probable that this niche once held an idol, and that the little chamber once formed what might be called an outer temple.

The second story on the terrace above on the same level as the flat roof of the outer temple is utterly demolished. All I could do was to make an approximate estimate of the mass of *débris*, and to assume on general architectural principles that it represented a double row of chambers, three in front and three in the rear. I know there are many objections to a restored plan, but the reader must admit that a tiny cabinet far below, and three large apartments up above are quite contrary to reason, and that there must have been something between. This something, according to my calculations, was a double row of chambers, which brings this plan of the whole construction within the bounds of reason.

It is probable that small flights of stairs, on both sides of the second story, led from the lower terrace to the one above, and thus to the entrances of the three chambers; on the other hand, stairways may have been run high up on both sides of the structure, from the level ground below to the upper platform.

The façade of the three chambers exactly faced the magnetic west, but is now in ruins. The middle chamber is 460 cm. long, and those to the right and left are each 410 cm. long. They are about 185 cm. broad. Their height from the floor to the truncation of the steep wedge-shaped vaulting is about 4 m. The outside length of the third story measured longitudinally is

¹ Plan not received. See No. 2, Figs. 20, 21, for plan and cross section. — EDITOR.

17 m. 30 cm. From the esplanade in front of the three chambers, Great Temple V can be seen rising high above the tree tops to the southwest.

It would have been useless to have attempted to photograph the front of this badly ruined structure, so I took a picture only of the well preserved rear (Plate 7, Fig. 2). Besides the tall substructure, the picture shows the plain surface of the wall and the plain frieze belonging to what I assume to be the second story, and also the rear wall of the third story with two perpendicular lines of division indicating the partition walls of the three chambers.

The Great Terrace to the East of Great Temple I. Opposite the three-storied structure toward the north (that is, to the right in the direction in which we are going) there rises an enormous rectangular terrace, the purpose of which is not clear, since its extensive surface shows no trace of stone structures. It was, no doubt, a natural plateau, levelled off and made rectangular. Below, near the west slope of the terrace, lie low mounds of débris, the ruins of a structure which bounded an oblong court with an opening on the west. These mounds are the remains of rows of single chambers opening on the court. Opposite lie the ruins of a two-storied building forming a long rectangle. Opposite the latter, and quite near, is another structure likewise two-storied and of similar proportions.

From this point to the eastern base of the pyramid of Great Temple I and the fallen east façade of the long adjacent structure to the north of it, stretches an open plaza without buildings of any kind. While the northern slopes of the upper town previously described rise on the left of it, on the right, along the edge of the ravine, lie the ruins of three structures: a long, low mound of débris followed by another very much larger one, and thirdly a ruin crowning a massive substructure, which seems to have had a stairway on the south side.

Descending the slope behind these two structures and examining the large lower terrace I found, contrary to all expectations, a single sculptured stela, which I called No. 17. The figure in bold relief on its north side was very much impaired; as were also the glyphs on its narrow sides; but the reverse of the stela, which I photographed (Plate 27) still displayed handsome, well preserved glyphs. From the Great Terrace, upon which I found Stela 17, there is a still further descent down to the *planada* at the bottom of the ravine, which I regard as the continuation of the great northern ravine of Tikal.

The Principal Square of Tikal with its Architectural Boundaries on the East, West and North. The architectural boundary of the principal square on the south formed by the upper city — or Great Acropolis — has already been discussed. We will now describe Great Temples I and II and the group of north temples which occupy the entire north side of the square.

Great Temple I (Plate 2). The pyramid of this huge structure closes the square on the east; its façade faces the west. According to the general rule of Maya pyramid-construction, the pyramid of Great Temple I (like those of all the others) has a projecting base about $2\frac{1}{2}$ metres high. Upon this rises the pyramid proper in nine graduated steps, eight of which are divided into several horizontal sections, while the topmost is plain on the sides, and all are, as it were, recessed at the corners, which can be seen on the plan.¹ The corners of the base are never recessed. The length of the pyramid measured on the west side at the first steps (not at the base) is about 39 m., and the breadth of the west stairway is exactly 8 m. 75 cm. The steps, divided four times, as may be seen on the plan, have a height of about 3m. each, making the total height of the pyramid, from the base to the platform of the truncation about 27 metres, or, including the base, $29\frac{1}{2}$ m., measured from the cement pavement of the square.

The coping on the upper edge of the pyramid steps has entirely fallen off, but, where the steps join the masonry sides of the staircase it can plainly be seen that there have been courses of coping stones.

Below on the square, close to the stairway, formerly stood two large, thick stelae, each with a circular altar before it. Both are now fallen to the ground, and a careful examination showed them to be without sculpture of any kind.

Above, on the platform of the pyramid, rises the temple proper on a base about 2 m. in height in front, with two rising gradations in the rear. A small flight of steps leads to the doorway of the temple as usual. The length of the temple measured in front at the west façade (not at the base) is exactly 11 m. 83 cm., the doorway being 271 cm. in width. Following the architectural middle line, the temple is exactly 759 cm. wide from the façade to the plain rear wall.

The doorway, 276 cm. in height, is spanned by two very broad but quite plain tsapotl beams, and leads into the first compartment of the temple. This compartment is 659 cm. long and only 74 cm. broad. Its height measured from the floor to the narrow truncation of the very steep, wedge-shaped vaulting is 531 cm. From the doorway to the temple there is a splendid front view of Great Temple II lying opposite, with III lying a little to the left, and the more distant IV, a little to the right, rising in the background above the sea of forest trees (Plate 1).

From this elevation the panoramic view was photographed in 1895, and also in 1904 with gratifying success on each occasion.

From the platform of the third temple of the front row of the group of temples on the north side of the principal square, a diagonal view of Great Temple I was also successfully taken showing it from the northwest (Plate 2).

There are large, white hands surrounded by red splatterings, and a few

¹ Plan not received. See No. 2, Figs. 29, 30, for plan and cross section. — EDITOR.

red hands painted above the entrance to the second temple chamber on the surface of the vaulting, and also below the spring of the arch. There can be no doubt as to a difference in the meaning of the red hands and the white, though we do not know what it is. After inspecting the red and the white hands, I examined those smooth walls very closely for incised drawings and discovered the roughly, but deeply incised figure of a dancing devil! It was evidently incised by the hand of an ancient priest after this grand old Maya city was abandoned by its inhabitants, and the contemplation of it aroused a feeling of bitterness and melancholy in the breast of the beholder, and served as a reminder of the transitoriness of all earthly splendor. This devil, showing his teeth in a mocking grin and dancing in the abandoned halls of the proud temples and palaces of Tikal, only proves once more how true it is that whenever human endeavor after fearful struggles has attained to a certain high degree of civilization, it is destined to decline and fall according to an inflexible cosmic law. Thus it was with Babylon and Nineveh, Memphis and Thebes, Carthage and Palmyra, "the devil is dancing everywhere" — and so will it ever be!

Ascending by a step 33 cm. in height and passing through a doorway 243 cm. wide, the second temple chamber is reached. This doorway is or was spanned by four strong tsapotl beams richly carved on the under side. Two of these beams were torn out by unauthorized individuals and carried away, while two are still in place. The principal personage of the somewhat impaired wooden bas-relief has a fantastic head attached to his back. The length of this chamber is 476 cm., and its width is 75 cm.

Ascending 20 cm. higher, a doorway 188 cm. wide leads into the third temple chamber. This entrance was formerly spanned by five tsapotl beams richly carved on the under side. They have all been torn out by mischievous persons and four have been carried away. I found only one of them lying on the ground in 1895. The figure carved upon it shows a handsome profile. The length of this apartment is 528 cm., its width 71 cm. The longitudinal wall still has faint traces of drawings in red.

The exterior of the pyramid and that of the temple with its roof-comb are adequately represented on the two photographic views. The step-pyramid shows the recessed corners. It should be borne in mind that the topmost step, the ninth, has not the horizontal divisions of the rest, but has plain sides. The photographs also show the plain base of the temple with its smooth walls. The frieze displays great ornamentations over the doorway on the west side and also at each corner, of which the central figure seems to be a large grotesque face. The west side of the receding roof-comb is likewise very richly decorated. In order to expose it to view in some measure, a ladder had to be fastened to the outside of the temple, so that one of the men could climb upon the roof-terrace to clear away the ugly shrubs which concealed the carving. The roof-comb probably rose up

in three sections, the top one of which is now mostly demolished. The man, who climbed upon the *azotea*, said he had found a very tiny chamber in the middle of the first section of the roof-comb at its base (a kind of niche), which however contained nothing of interest.

The total height of this interesting structure is computed as follows:

From the cement pavement of the square (inclusive of the projecting base) to the truncation of the pyramid, $29\frac{1}{2}$ metres.

From the platform formed by the truncation (including the base 2 metres high in front) to the upper edge of the frieze.

From the *azotea* formed by the roof of the vaulted front chamber to the highest point of the roof-comb (adding about 3 m. for the portion fallen off) 17.7^1 m., giving a total of 47.2 m. from the level ground of the square to the highest point of the roof-comb (restored).

Great Temple II (Plate 3 and Plan, Figs. 4 and 5). The west end of the square is occupied by Great Temple II, the façade of which almost exactly faces the east of the magnetic needle.

A projecting step about $1\frac{1}{2}$ m. high also serves here as the base of the pyramid. The three large and steep steps rising up from it are each about $6\frac{1}{2}$ m. high, having certain horizontal divisions and the usual recessed corners. It is probable (but not absolutely necessary) that the large, slightly sloped sides of the steps had a projecting cornice, which has disappeared.

The base of this pyramid is, I believe, an equilateral square, each side measuring 34 m. at the first step. The platform on top is $21\frac{1}{2}$ m. square. A stairway about 9 m. wide, before which we found a circular altar but no stela, leads up from the plaza to the platform upon which stands a substructure 2 m. in height (in front), upon which rises the temple proper. As usual a small front stairway leads up over the middle of the substructure to the entrance of the first temple chamber. The front length of the temple (measured not at the slightly projecting base but from wall to wall) amounts to exactly 13 m. 95 cm. Breadth, measured from the central line of the structure, is 10 m. 51 cm.

The doorway is 225 cm. wide and 265 cm. high and was formerly spanned by five strong *tsapotl* beams, which, alas! have been wantonly torn out, causing a great mass of masonry to fall down, together with the frieze and vaulting resting upon it. Whether the *tsapotl* beams were carved on the under side and what has become of them, nobody can tell.

The first temple chamber is 485 cm. long and 115 cm. wide.

A low step 215 cm. wide leads through a doorway into the second temple chamber. This entrance was spanned by five beams of *tsapotl* with very

¹ Measurements given in italic figures from here on were omitted by Mr. Maler and are supplied by the Museum Expedition of 1910. — EDITOR.

fine carving on the under side. All these beams were torn out by plunderers of this temple and three were carried away.

In 1895 I found one of these richly decorated beams which had been left behind in the temple. In 1904, searching among the fallen masonry, I found a second beam half burned, and evidently purposely hidden away. While

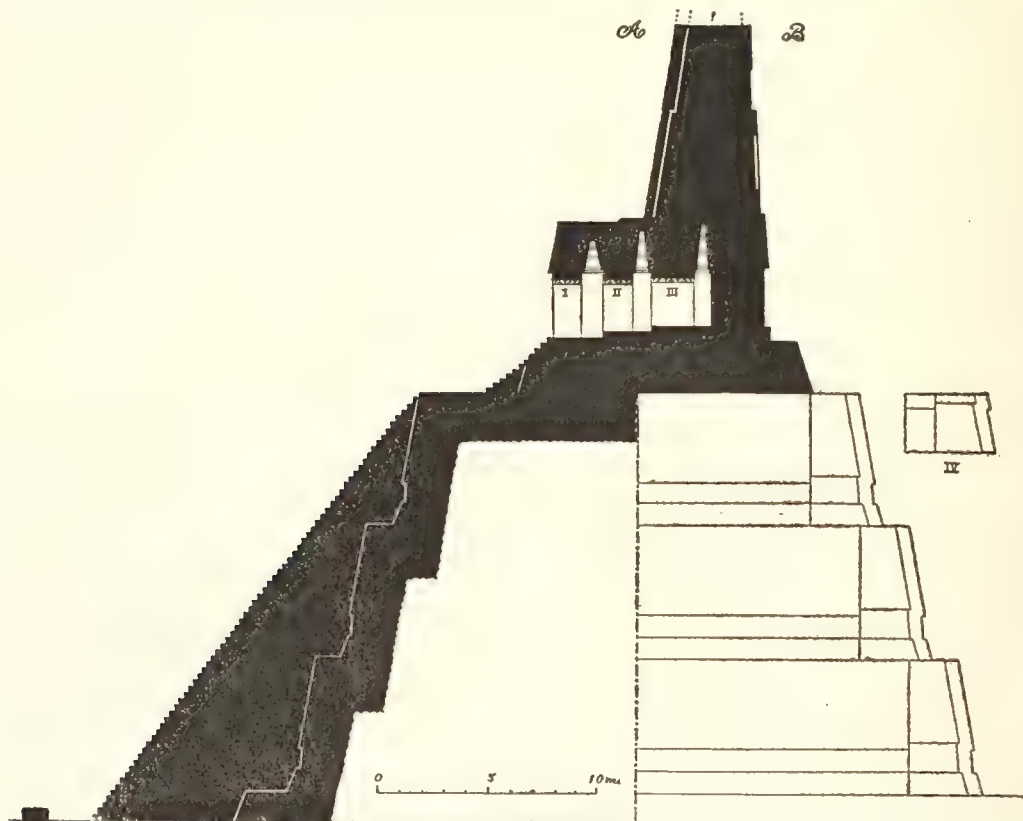


FIG. 4.—TIKAL: SECTION OF TEMPLE II. I. Five crossbeams of zapotl wood have been taken from their places. II. Five crossbeams of zapotl wood with figures in low relief, one is entire, one half-beam still in temple and three are missing. III. Six crossbeams of zapotl wood.

charring the two ends, the beam was probably half burned up and therefore the pillagers hid the remains under the débris in order to conceal all traces of their depredations. I had both the beams carried out and placed side by side upon the platform, where I photographed them when the light was favorable. The carving, which represents a sumptuously dressed priest, came out so exceedingly well in the photograph, that I can save myself the trouble of describing the excellent details of the work (Plate 18, Fig. 2). I will only say that the half-burnt fragment of the second beam, which I placed beside the first, very evidently does not belong to it, but probably formed the front of a carving of a similarly attired priest.

The second temple chamber is 495 cm. long by 100 cm. broad.

Another low step brings one to the third temple chamber through a door-

way, 193 cm. wide, spanned by six perfectly plain tsapotl beams. The third temple chamber is 350 cm. long and 94 cm. wide. The height from the floor to the narrow truncation of the very steep, wedge-shaped vaulting is 520 cm.

Upon the smooth, whitened walls of the apartments of this temple I found

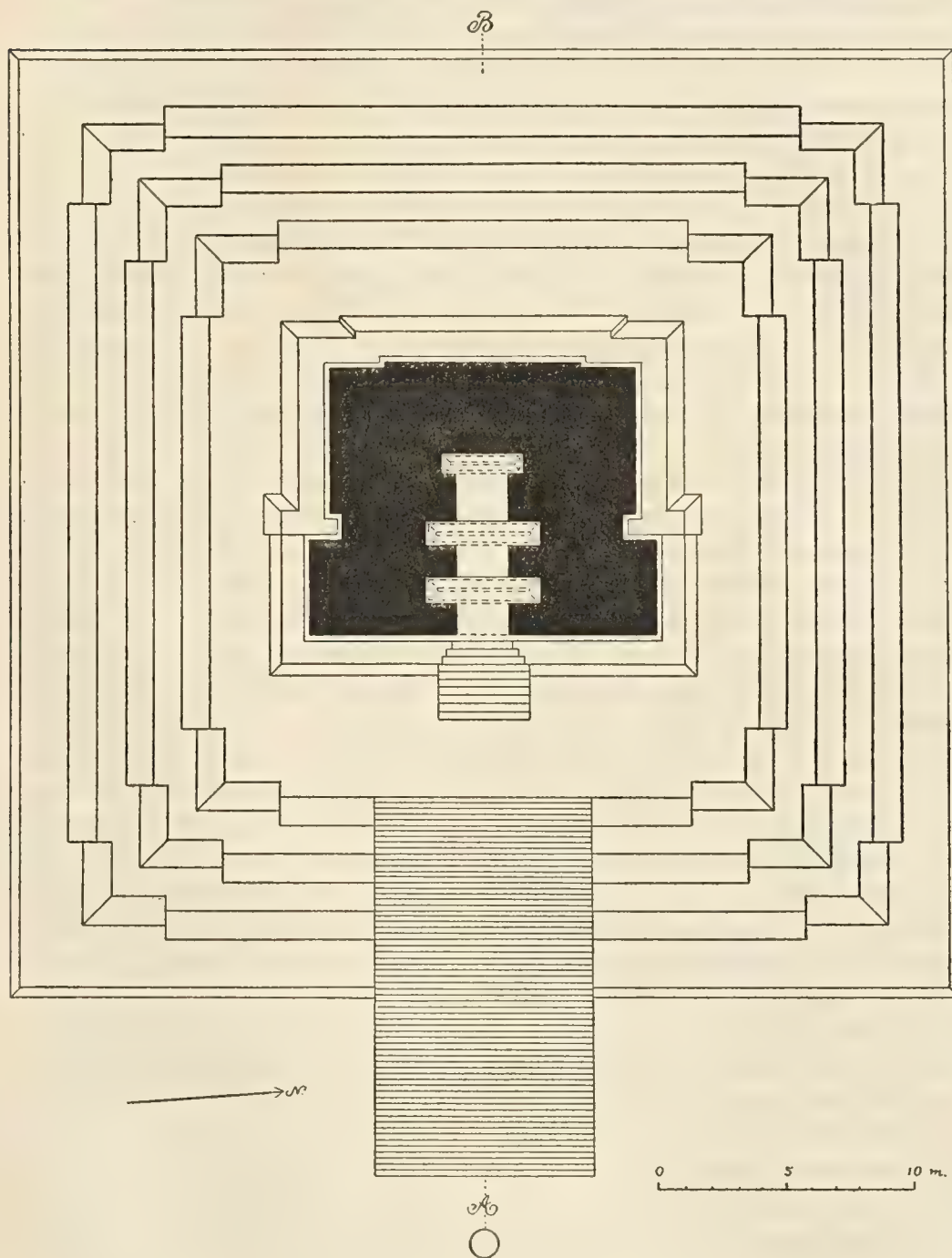


FIG. 5. — TIKAL: Plan of Temple II.

very interesting incised drawings. They were copied in 1895 and are shown in Figures 8-11, 16.

In order to give a better idea of this structure, two photographs were taken. One, taken from the doorway of Great Temple I, gives a full front view (Plate 1). The other, taken later from the platform of the second temple of the north group of temples, gives a diagonal view of the temple as seen from the northeast (Plate 3).

The frieze on the east façade doubtless had three great decorative carvings, one in the middle over the doorway, and one at each corner which, as usual, turn the corner to include on the other side the wall of the narrow ends of the structure.

Receding to the width of the terrace-roof of the front apartment of the temple, rises the enormous roof-comb, probably in three sections, of which the top one has fallen down. The roof-comb shows on its east side the most elaborate carving of figures it is possible to imagine. It is probable that below all this was a conventionalized gigantic face constructed of stones and stucco. If this supposition is correct then the circular design with its pendants, on either side of what was once the giant face, can be regarded as its ear-ornaments.

On all five great temples the division of the roof-comb into three sections can be more readily distinguished at the sides and back, than on the richly decorated front.

This temple construction is 21 m. high from the cement pavement of the square (including the base) to the platform of the truncation. From here to the highest point of the (restored) roof-comb (assuming it to have been in three sections) the measurement is $22\frac{1}{2}$ m. giving a total height of approximately $43\frac{1}{2}$ m.

Closely adjacent to the south side of Great Temple II, rises the not inconsiderable pyramid of a neighboring temple. This pyramid has a stairway on its north side, for the façade of its temple faces north, that is, it faces the right wing of Great Temple II. Like almost all the great temples of Tikal the temple proper occupying the platform had the typical division into three apartments. Unfortunately it is now an almost total ruin. From the platform of this pyramid an excellent, strictly profile view of Great Temple II can be had, which I recommend to a future visitor.

A few steps to the west of the temple just mentioned, rises another pyramid of considerable size and of similar construction, with a stairway on the north side of the substructure, and the threefold division of the inner space of the temple proper.

The rear sides of both temples overlook the south ravine already mentioned several times.

Along the north edge of the principal square (near the foot of the terrace constructed on that side) there is a row of 13 stelae varying in size

Seven are sculptured:—Nos. 8, 9, 10, 11, 12, 13, 14. Placed somewhat in advance of this row is another of five large, thick stelae quite without carving. Each of these stelae (excepting the little inscription-stela, No. 14, which is broken off) has a circular altar in front of it. The total number of stelae in the square is twenty, including the two in front of the stairway of Great Temple I. The number of circular altars is the same, if, as it seems, there is no stela belonging to the altar in front of the stairway of Great Temple II.

While describing the architectural centre of Tikal, I am reminded of an event which transpired during the second half of the nineteenth century to the detriment of this metropolis, lying hidden in the depths of the primeval forest, and hitherto untouched by the destructive hand of man.

Flying from the horrible conditions prevailing in the south of the peninsula of Yucatan, two groups of fugitives had sought protection in the territory of Peten, one settling near the Laguna de Santa Cruz (probably near the present Chúntukil), the other near the Aguada of Tikal.

It would doubtless have been in the interest of the rapidly decreasing population of Peten, if its government had welcomed all immigrants willing to work, with open arms, and assigned them land for agricultural purposes. It was however an unpardonable mistake on the part of the authorities of Peten to permit this group of fugitives to settle close by the ruins of Tikal, for owing to the well known ruthless character of those rude and ignorant people, it could only result in the destruction of the magnificent monuments of ancient days. There was a superfluity of land upon which they might have settled without doing the least harm. In order to gain ground for their milpas, the settlers near the aguada lost no time in cutting down the forest right across the principal square, gradually pressing forward as far as Great Temple III and then setting fire to the felled trees after they were sufficiently seasoned. This huge bonfire naturally had a disastrous effect upon the sculptured stones in the square and on the terrace constructed on its north side, horribly calcining and cracking them. As if enough mischief had not been accomplished, the faces of the sculptured figures were defaced by hacking, because among the Spanish Yucatecs the superstition prevails that the spirits standing in relation to these figures, angered by human interference, could do the milpas no harm after their faces were mutilated. Encouraged from time to time by treasure seekers from Peten-Itza, this band of settlers raged for years quite undisturbed among the treasures of the grand old ruined city. But in course of time the great distance from other settlements grew irksome to the colony and the settlers gradually dispersed in different directions. The Peteneros, however, ascribe the breaking up of the colony to a plague of bats. Great bloodthirsty bats began to swarm at night about the huts in the forest sucking the blood of chickens, pigs, and other lesser domestic animals, gradually killing them off. Even children

were in danger of being similarly attacked at night. It was therefore not the government of Peten stepping in to prevent the depredations carried on by the settlers, but it was the bats, which saved Tikal. Since I discovered long ago, that in ruins inhabited by bats there are none of those dangerous wasps which so furiously attack the traveller, I have felt a sympathetic regard for those mysterious little nocturnal mammals; but after hearing that the bats had driven away the destructive band of Yucatec depredators from Tikal, I have looked up to them with the highest esteem.

I must add the regrettable fact, that while the authorities of Peten-Itza in no way interfered with the destructive course of the Yucatec settlers in Tikal, the harmless people, who settled in Santa Cruz without injuring any one, were grievously harassed and finally quite driven away by the brutalities of Colonel Sala.

Along the whole north side of the principal square lies an extensive levelled off elevation, rising only about 3 m. above the level of the ground, which serves as an esplanade for the group of north temples. Upon this terrace, receding considerably from its edge, stand four temples differing in size, the third of which (counting from the west) corresponds with the architectural centre of the whole group. All four have a pyramidal substructure and their façades face south, that is, they look on the square. All have the typical three-chambered arrangement within and the peculiar recessing on the outside at the narrow ends between the first and third chambers. The façades of all four temples have fallen down. From the floor of the second (counting from west to east) I took a diagonal view in 1895, which plainly shows the strongly outlined architectural divisions of this temple and makes further description unnecessary (Plate 9, Fig. 2). It should be borne in mind that the picture shows the base, the main wall and frieze of the temple, but not the pyramid partly set against the hill which serves as a substructure and more of which is visible in a front view.

The east side of the terrace is bordered by two little temples standing on a common platform, with façades turned to the west. Each temple has two little compartments; one in front and a very narrow one behind. Close to this temple, on the north, on a small platform with a little stairway on the west, is another little temple with three diminutive chambers, the front one being slightly longer than the other two.

Close behind these three transversely placed little structures, but below the terrace, is a long similarly placed edifice whose now demolished façade was turned toward the east. Whether this structure had a double or single row of apartments cannot now be determined, although the rear wall still stands intact.

Upon this lower, common terrace, I found in all fourteen stelae, each with its own circular altar. The arrangement of these stelae is shown on the general plan of the city, and seems to point to the fact that a certain relation

exists between them and the temples. Of these fourteen stelae, five — Nos. 3, 4, 5, 6, 7 — have bas-reliefs. Of the circular altars, four — I, II, III, IV — have bas-reliefs.

Ascending the slope of the hill to reach the side of the temple-pyramid forming the centre of the group, we come, half way up, to a narrow rear court. The north side of this court is occupied by a building enthroned upon a small substructure having a chamber of considerable size in front and three little apartments in the rear. The façade with its three doorways, now demolished, faced the south, and on this side also was the stairway supported by the substructure. Close to the foot of the stairs, in the narrow court, I found a stela in 1895, which I called No. 1. It was almost wholly buried under the great mass of débris which had fallen from above. The top was gone, probably struck off by a falling tree. When we excavated this stela in 1904 we did so within a wide circle described around it, in order to enable me to photograph it on all sides; in doing so we came upon, not the missing top, but the upper half of a similar stela, which I regarded as a predecessor of the first one, and therefore called it No. 2. There was no circular altar in front of Stela 1.

Ascending three or four metres to the right or the left of this structure, the upper terrace is reached; that is, the truncation of the hill, which had been squared and levelled. In the architectural centre of the whole construction rises the chief temple of the north group, which may with truth be regarded as *the lesser acropolis, situated on the north side of the square*. This temple also crowns a pyramidal substructure of considerable height with a stairway on the south side. As a matter of course, this temple, now half demolished, faces the south and shows the usual triple division of space within, the front chamber being somewhat larger than the rear chamber, and the middle one slightly contracted. From this platform the ancient priests, no doubt, enjoyed a magnificent view of the great square and its architectural surroundings. At the back of this pyramid the hill slopes far down to the great north ravine of Tikal.

Transversely placed on the right and on the left of this temple, upon the usual substructure, stand two similar three-chambered buildings, the façade of one facing east and the other west. In both cases the front apartment is somewhat longer than the two chambers in the rear, which are of equal length. These spacious apartments, partially well-preserved, have very fine vaultings and the exterior, at least on the sides and the back, shows interesting architectural divisions into sections. The two buildings were probably not temples but stood in some relation to the temple standing between them.

On the north, close beside each of these transversely placed buildings, stands a small two-chambered structure with front and rear chamber. These latter structures face the north and closely border on the edge of the declivity.

The Palace of Two Galleries. A raised pathway, forming a right angle on the west side of the lower terrace, leads to a palace with two fine long galleries, one now in ruins in front, once, probably, with five doorways, and another in the rear, still preserved, with only two doorways leading from the front gallery. The façade exactly faced the magnetic south. The rear and side walls are still intact but their friezes have fallen down. The exterior length of the structure is about 30 m., and accordingly the inside length of the gallery is about 27 m. The width of the second gallery is exactly 167 m. The sharply outlined and carefully constructed vaulting is strictly triangular, truncated as usual and of agreeable proportions.

A wide terrace spreads out on the south side of the palace. Upon this terrace I found six stelæ with their circular altars, partly broken up and calcined and all in great confusion. Only one of them, which I numbered 15, showed any traces of carving, and even this was broken into so many fragments that it baffled comprehension. All the others were quite plain. The milpa fires, set by those miserable Yucatecs, no doubt also raged on this terrace, otherwise the stelæ could not have been so badly injured. The only stela with carving was evidently intentionally broken in pieces, owing to the superstitious belief mentioned above.

Near this terrace I found two half filled up *chultuns* (rain wells) which may yield some trifling objects to a future explorer.

*Great Temple III.*¹ Proceeding in a westerly direction from Great Temple II, Temple III is reached with its façade facing the east. The pyramid, which serves this temple as a substructure, rises from a projecting base in nine steps, which show the peculiar recessing at the corners. It may be taken for granted that the first eight steps had the same horizontal divisions as those of the pyramid of Great Temple I, while the ninth had only plain, steeply sloping sides, if it is true that the architects of Tikal invariably followed this rule in the construction of great pyramids. Since the facing of the steps had all fallen off owing to the destructive effect of vegetation, I could no longer determine their exact form at any point. The stairway on the east side leading to the top platform is about 13 m. at the base and grows narrow toward the top. The length of the pyramid measured on the east at the first step is about 49 m.

The temple on the platform made by the truncation, stands on a base about two metres high in front and a little higher at the back. As usual a little flight of stairs leads up over the base to the doorway of the front apartment of the temple. The length of the temple, measured in front on the façade wall (not at the base), is 1639 cm. The breadth of the structure, measured from the façade wall to the rear wall at the architectural centre line, is 890 cm. The doorway is 395 cm. wide and 333 cm. high, and leads

¹ Plan not received. See No. 2, Figs. 41, 42, for plan and cross section. — EDITOR.

into the first apartment of the temple. It was once spanned by six broad and thick tsapotl beams, which have been pulled out and carried away by depredators, and this makes it impossible now to say whether they were carved on the underside or not.

Great Temple III has but two chambers. The first apartment is 671 cm. long by 161 cm. broad and 653 cm. high. A single step brings one to the second apartment through a doorway 213 cm. wide by 318 cm. high. The length of this chamber is 344 cm. by only 72 cm. wide and 618 cm. high. The doorway is (or was) spanned by ten tsapotl beams very richly carved in bas-relief on the underside. When I first visited Tikal in 1895, the first of these beams had already been removed — the prey, no doubt, of some robber. Very probably this beam had a double row of hieroglyphs like the tenth, which has $2 \times 19 = 38$ glyphs. Unfortunately they are badly eaten by *commehen*. Otherwise this lintel carving was still in fair condition in 1895, and on my return in 1904 I intended to photograph it at night with the aid of magnesium light. I was therefore greatly disappointed to find, that in the meantime, vandals had hacked off great pieces with their machetes, so seriously mutilating the whole that I was obliged to forego any attempt at photographing, which would have been difficult enough under the best of circumstances. I can therefore only give the reader the description I made of this carving in 1895, when it was in a very much better condition. The first and tenth beams being counted out, the carving occupied the remaining eight and showed three personages nearly life size, most elaborately attired, their faces drawn strictly from the side, displaying the familiar pleasing Maya profile. The personage of high rank in the middle holds out a staff of ceremony and has a fantastic head attached to his back. Opposite the central figure stands another personage of high rank stretching out in his right hand a staff of ceremony toward the former. Behind the central figure is a third in a stooping attitude raising the right hand and holding a ceremonial staff in the left. Between the two latter figures is a small altar (?) with rounded corners ornamented with crosses and disks, while above the stooping figure there is room for the half length picture of another personage with an agreeable profile. The drawing of these sacerdotal forms and their elaborate accessories is excellent and spirited. Indeed, the entire carving is executed with superior skill which makes its destruction all the more to be regretted. As can be seen on the diagonal view of this temple (Plate 4) the frieze of the east façade also has three decorative designs, — one in the middle, which fell off when the lintel beams were torn out, and one at each corner which turns so as to include the wall on the narrow side. An imposing roof-comb rises from the flat roof of the temple in three sections, with a backward pitch in front. The whole east side of the roof-comb is most richly decorated with figure ornamentation which turns at the rounded corners to include the adjoining narrow sides of the structure.

The height of the pyramid is $32\frac{1}{2}$ metres from the natural level of the ground (inclusive of the base) up to the platform of the truncation. The height of the temple was computed at 21.7 m. from the platform (including the massive base) to the highest point of the roof-comb (adding about three metres for the part fallen down). Hence the total height of Great Temple III is 54.2 m.

The distance between Great Temples III and IV is considerably greater than between II and III. The intervening space is filled out architecturally by a line of three palaces of great length. The central one of these, now wholly in ruins, could have had but one story, while the other two plainly had two stories. To the west of the line of these three structures there are two small temple-pyramids, not placed side by side but one behind the other, and then comes the lofty terrace upon which is piled up the stupendous pyramid of Great Temple IV.

The Palace of Two Stories with 14 + 7 Chambers, in the Rear of Great Temple III (Plan, Fig. 6). The first story of this palace, with its façade fronting east, rises on a massive substructure having a broad stairway on the east. The central portion of this palace has five large chambers in front, each with an entrance on the east, and opening into five other chambers, on a somewhat higher level, in the rear. The apartments in front are 175 cm. wide and have admirably carried out stepped vaultings; those in the rear have merely plain wedge-shaped vaultings. The façade being broken down, it was quite impossible to take a photograph of any of the front apartments, but I photographed one of the rear chambers, that at the south end of the row, with the aid of a magnesium light, since the wide but low window and the two little doors admitted insufficient light from the outside (Plate 11, Fig. 1). The photograph was taken looking from north to south, and shows the character of the wedge-shaped vaulting with the round tsapotl beams transversely inserted still in place.

In the rear chamber next to the one photographed, the floor is almost wholly occupied by a high bench, at the end of which two steps lead down to a little doorway opening into the central chamber of the back row. This middle apartment is 830 cm. long and has no window, for it receives sufficient light through the doorway of the front room. These rear chambers are all about 146 cm. in width. The fourth one of this row has a great stone bench with little masonry walls at each end by way of arms. This bench runs along the second longitudinal wall near the window. There is nothing more to be said about the fifth chamber than that it also has a window and a little doorway connecting it with the front apartment, and another leading into the transversely placed rear chamber of the north side; for, adjoining the central part of the first story on the south and north, there are two transversely placed chambers, one in front with another behind it.

Each front chamber has an entrance on the north or on the south according to position, and a broad platform before it formed by the massive substructure. The whole length of the first story from the south wall to the north wall is 52 m.

As there is no vestige remaining of a stone stairway, it is probable that a flight of wooden steps led to the second story, which is set back sufficiently

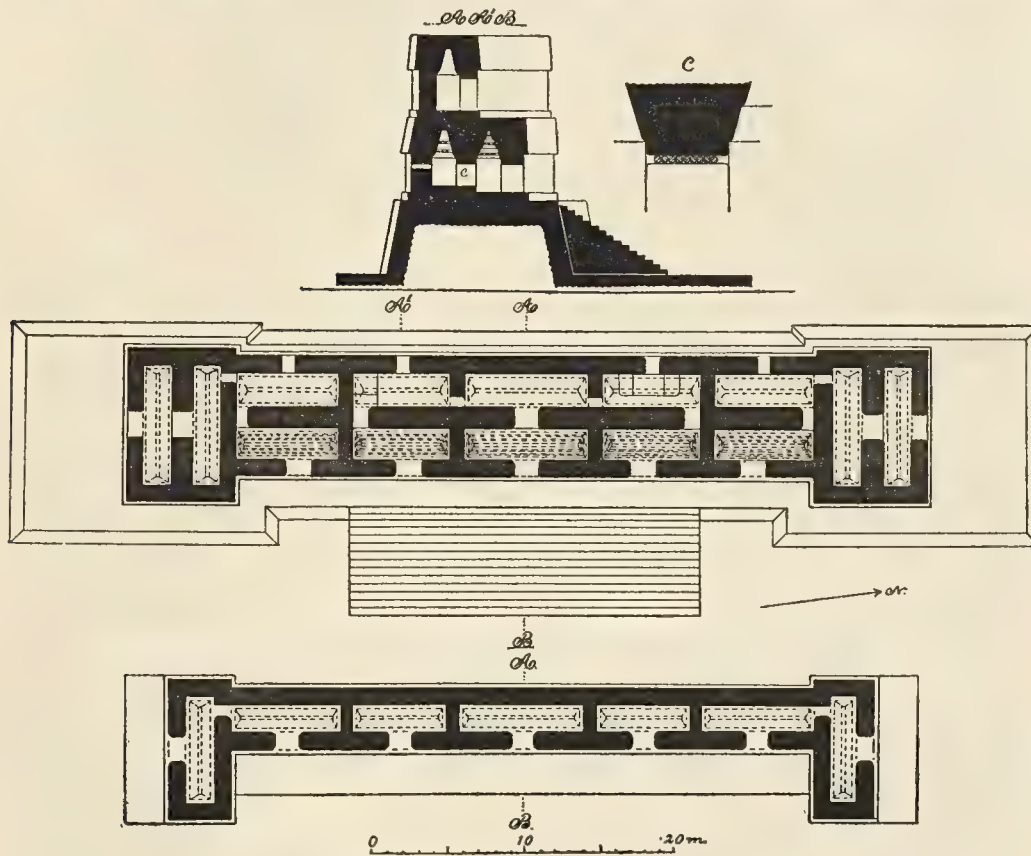


FIG. 6. — TIKAL: Plans and Sections. Palace of Two Stories and 21 Chambers in Rear of Temple III.

far on the east to allow the flat roof of the front apartments of the first story to form a broad esplanade in front of the row of five rooms, each with a doorway fronting east.

At each end of this row of five rooms there is another chamber transversely placed, each with an entrance on the north or south, according to position, and each with a little platform before it formed by the flat roof of the front apartment below. The second story is nearly all in ruins but the division into seven chambers can still be traced.

There is little to be said of the ornamentation of the friezes of the broken down façade, excepting that the frieze on the west side of the first story is still well preserved. This has a slight inward pitch and a plain surface with fantastically conventionalized faces (*mascarones*) carved upon it at inter-

vals, and also at the corners. They are too indistinct to be photographed, but I would recommend visitors to Tikal not to omit looking at them.

The spacious court on the east of the palace is bounded on the north and on the south by a low barricade of débris, being the ruins of rows of single apartments. The court is open toward the east.

This important structure, containing in all 21 chambers, was no doubt the sacerdotal palace belonging to Great Temple III.

After this palace comes a long, low mass of débris lying in a northerly direction, which must have been a structure containing a double row of apartments. Then follows, still to the north, the huge ruins of a two-storied structure, which may be regarded as standing in some relation to Great Temple IV, since it faces the latter.

The Sacerdotal Palace Belonging to Great Temple IV. A stupendous mass of débris rises on a rectangular platform, which is formed by a massive substructure and is reached by a stairway on the west. The débris represents a structure of two stories now so completely ruined that a restoration of the original plan is quite out of the question. Only the massive rear wall of the first story still stands and shows that the entirely unbroken east side (the rear) of the edifice had no entrances and that the whole structure fronted west. A little further to the north or northeast of this palace there are said to be the ruins of a small temple (*un pequeño cuyo*), which I was unable to inspect. One of the men said he had seen it, and that there were two or three plain stelae on the little plaza in front.

Upon the square between the row of palaces just now described and the great terrace on which stands Great Temple IV, there are two little temples standing close together one behind the other, each with its façade and the stairway of its pyramidal substructure fronting west. Both temples are in ruins, but it is sufficiently clear that they had the typical triple division of chambers.

On the plaza in front of the west side (as we are now proceeding) of the first temple, five large thick stelae are set up in a row, each with its circular altar. A little in advance of this row upon the line of the architectural centre, is a somewhat smaller sixth stela, also with a circular altar before it. The six stelae are all plain. Somewhat in advance of this temple is placed the other similar structure, but without stelae or circular altars on the plaza before it. A little to the north, fronting the north side of this second temple and very near it, is a masonry quadrangle once, no doubt, containing small chambers and having an entrance on the south. In the middle of this quadrangle stands Stela 16 in all its glory, still unharmed, and in front of it, deeply buried in the earth, we found Circular Altar V, which was destined to become so widely renowned. The priests, no doubt, covered this splendid specimen of Maya art with earth, when the city was abandoned, to preserve

it from destruction. But we must assume that even in Maya times this circular altar was protected from the rains by some kind of a roof, for the sculpture on its upper surface looked like new.

*Great Temple IV*¹ (Plate 5). This temple stands on an eminence eight metres in height and probably natural, though artificially levelled off on the top. On its eastern slope is a broad stairway, the steps of which have long since fallen down in confusion. Standing back about fifteen metres from the eastern edge of the levelled-off surface rises the stupendous pyramid which serves the temple as a substructure. The base of the pyramid is almost entirely covered up by débris, and its steps are in such a ruinous state on all four sides, that their former division into horizontal sections is no longer apparent. The number of steps was doubtless nine and their division into horizontal sections probably like that of the steps of Great Temple I. It should also be assumed here that, while the first eight steps showed the horizontal divisions, the ninth step had only smooth, steeply sloping sides. The familiar recessing of the corners must unquestionably also have been applied to the steps of this pyramid. A stairway, which together with its side walls had a considerable projection at the base, leads up on the east side of the pyramid to the platform of the truncation. This stairway like those of Great Temples III and V is broader at the base than at the top. A large plain stela with a circular altar before it stands directly in front of the stairway, and is at present in the grasp of a mighty kopó tree (*Ficus Indica*). The breadth at the bottom of the stairway is 18 m., at the top 16m. The whole length of the pyramid measured at the first step of the east side (not at the base) is 58.7 m. The breadth, much less, is 53 m. The platform on top measures 32 m. in length, by 14 m. in breadth.

The temple proper has a smooth, slightly projecting base about 2 m. high in front, and a little more at the back. As a matter of course, a little stairway leads up in front over the base from the platform to the first apartment of the temple. The wall of the façade measured from corner to corner, not at the base, is exactly 30 m. 30 cm. in length, which is very long for one of these elevated temples. The breadth of the structure, measured at the architectural centre, is 1213 cm. A doorway 310 cm. wide by 317 cm. high leads into the first temple chamber. This doorway is spanned above by six broad tsapotl beams, plain on the under side.

The first chamber is 650 cm. long, 124 cm. wide and 678 cm. high.

A step 40 cm. high leads to a doorway 212 cm. wide and 319 cm. high, opening into the second temple chamber. This entrance was once spanned by six broad tsapotl beams, which undoubtedly were carved on the under side. They have all been torn out and carried away, no one knows by whom or whither. Judging by the size of the sockets in the masonry on each side

Plan not received. See No. 2, Figs. 44, 45, for plan and cross section. — EDITOR.

of the doorway the beams must have been very broad, and have had the finest carving in the whole temple. The second temple chamber is 464 cm. long, only 74 cm. wide and 690 cm. high.

Another step 40 cm. high brings the explorer through the third doorway into the third temple chamber. This doorway is 194 cm. wide and 329 cm. high, and is broken through a partition wall 237 cm. thick. It was formerly spanned by eight (possibly only seven) tsapotl beams, which were torn out and carried away for their carving. The length of the third temple chamber is 438 cm., the width is only 70 cm. and the height 685 cm.

It is not unlikely that the tsapotl beams which spanned the third entrance in Great Temple IV are those which Dr. Gustave Bernoulli, who visited Tikal in 1877, sent to Europe and which his heirs have presented to the museum at Basle.

At the end of June, 1877, I undertook an expedition to Palenque, starting from San Cristóbal de Las Casas, which is situated high on the table-lands of the state of Chiapas of which it is the capital. The present rulers have added a quite superfluous *s* to the end of Chiapa.

Dr. Gustave Bernoulli, accompanied by a young German, Herr Cario, coming from Retaluleu (Guatemala) by way of Comitlan and Ocotsinco, arrived July 16, 1877, at Palenque — that is, at the modern village of that name — intending to visit the neighboring ruins. During this journey, Dr. Bernoulli, aided by Herr Cario, collected many specimens for an interesting herbarium, but found much difficulty in drying the plants between layers of paper, owing to the great humidity of the atmosphere at that season. We interchanged a good deal of information concerning this country and became very good friends. On July 26, Dr. Bernoulli and Herr Cario left Palenque to continue their journey to Peten-Itza (Flores) and thence to the capital, Guatemala. Dr. Bernoulli was at that time already suffering greatly from weak lungs. He was amply supplied with funds, but I feared he would not be equal to the difficulties of the journey, though there was comfort in the knowledge that he had a strong young companion with him.

After safely accomplishing the journey, Dr. Bernoulli wrote me a letter from Retaluleu under date of October 22, 1877, which I received at San Cristóbal, whither I had returned. He wrote that he had succeeded in visiting Tikal in the neighborhood of which, near the aguada, a few Indian families were still living. Some of the great structures still contained woodwork. The "wooden ceiling" (what I would call the under side of the lintel beams) of one of the temples was still intact and was adorned with fine carvings in bas-relief. He had obtained permission from the government of Guatemala to take out this "wooden ceiling" and send it to Europe, and he had sent money to the alcaldes of San Andres and San José to cover the expenses of removing the beams and transporting them.

In order to decide the question whether the beams in the Basle Museum

are really the lintel beams of the third doorway of Great Temple IV of Tikal, their number and size should be compared with the measurements which I shall give here. After deducting about 50 cm. at each end for the plain parts let into the wall, which were burnt or cut away, the visible, disengaged part of the beams would be 194 cm. in length, equalling the width of the doorway. It should be noted that the backs of the beams have also been cut away. The total breadth of the carving (comprising seven or eight beams) ought to correspond to the thickness of the wall, which is 237 cm. From this about 8 cm. should be deducted at each edge of the wall making the actual breadth of the carving 221 cm. (inasmuch as these ancient builders never pushed forward the lintel beams flush with the stuccoed surface of the wall, but always withdrew them from 5 to 10 cm. from the edge).

If the carving consisted of eight beams, the average breadth of each one would be about $27\frac{1}{2}$ cm. If the carving consisted of seven beams then each beam would average $31\frac{1}{2}$ cm., deducting 1 cm. at the joining in each case.

Should the measurements of the third doorway not coincide at all with the Bernoulli beams, it would not seem superfluous to take measurements also of the six beams of the second doorway. In this latter case the disengaged portion of the beams is 212 cm. in length. The thickness of the partition wall between the first and second chambers is 231 cm. Deducting 2×8 cm. (for the reasons given above) would leave 215 cm. for the breadth of the carving, giving an average breadth of 36 cm. to each of the six beams.

The Indians, by the way, when they pulled out the carved beams from the temples of Tikal, at the instance of the art connoisseurs, adopted the reprehensible method of burning off both ends, in order to save their machetes. As this process is a rather slow one, they frequently leave the beam burning while they go to their meals or drink their *potsol*, and are quite undisturbed if a pair of sacerdotal feet, the plume of a helmet, or some interesting hieroglyphs are consumed during their absence. (The half-charred beam which I pulled out from under a heap of débris in Great Temple II is an incontrovertible proof of my assertion.) These people do not know the use of saws, and it is very difficult to cut the exceedingly hard tsapotl wood with a machete. But since these beams with the ends burned off and the backs cut away are still very heavy to carry, and also because the Indians frequently see very little of the large sums expended for such work, they generally end by leaving one or two beams in the temple or throwing them away on the road, as the Indians themselves have very complaisantly told me! After all that has been said here it would seem advisable to examine the Bernoulli beams in the Museum of Basle and find out whether any of the important parts have been burnt away at the ends, whether the carving is intact as to breadth, that is, whether any of the beams are missing. If everything is as it should be, it must be admitted that Dr. Bernoulli was extraordinarily fortunate in his undertaking.

It is well known that Dr. Bernoulli never saw Europe again, but died on his homeward journey in San Francisco, California, in 1878.

It must always be difficult for a European naturalist to determine an exotic tree merely by a specimen of its wood. It is absolutely necessary that he should examine the leaves, blossoms and fruit. I will therefore state once more that all the beams and most of the logs used in the structures of Tikal came from the Chictsapötl tree (*Achras Zapota* Linnaeus), which occurs so frequently in Central American forests. It is the tree which through a V-shaped incision yields the familiar chewing gum, called *el chicle*. The Aztec name for this gum is *tsictli*, pl. *tsictin*. It was probably also pronounced *tšictli*, *tšictin*, whence the Spanish *chictli*, *chictin* is derived, and from the latter no doubt the form *chicle*.

The older writers call the tree *chictzapötl* and *xicontzapötl*, pronounced *tšictsapötl* and *sicontšapötl*. *Xicoll*, *xicomé* (*šicotl*, *šicomé*) is the name of a large species of bee, whose product is called *xico-cuittlatl*, i. e., secretion of bees, wax. Thus *xicon-tsapötl* was formed from the plural *xicom*, with a change from *m* to *n*, and a reference not exactly to bees or wasps but to the sticky, gummy substance which is yielded by the tree in question. It is pure white when fresh, and is contained in a small quantity in the brown peel of the delicious, round fruit, so great a favorite with men and monkeys. Also that little mammal of social proclivities, the *Nasua socialis*, called *pitsotl* by the Aztecs, and, strange to say, *chic* (*tšic*) by the Mayas, noisily squealing, searches eagerly for the juicy fruit, for which reason the natives very generally imagine the name *chicozapote* to mean *zapote del chic* (or *Masua socialis*).

After cutting away the trees as far as the southeast corner of the lofty terrace upon which rises the pyramid of Great Temple IV, I was able to take a diagonal view of the temple, with a somewhat forced perspective, it is true, for the farther we descended the slope of the terrace elevation, the less favorable became the point of view (Plate 5).

The smooth walls of the temple rise from a simple base. The frieze has a slight inward pitch and shows five large ornaments on the east side, one over the doorway and one at each corner (turning, as usual, so as to include the adjoining end wall) and one in each space between the middle and the corner. The fundamental idea of each ornament is a fantastic head. Receding some distance from the edge of the roof-terrace the lofty roof-comb rises in three sections, the highest one having already fallen down in ruins. The east wall of the roof-comb has figures and scroll-work on an enormous scale. It is possible that the central part of the structure below was covered by a gigantic face.

The measurements of Great Temple IV as to height were estimated as follows:—Height of pyramid from the lower terrace to the platform of the truncation (including the base $2\frac{1}{2}$ m. high), 45 metres. From the platform

to the highest (restored) pinnacle of the roof-comb (including the base 2 metres high in front), is 24.7 metres. Making the total height from the lower terrace to the (restored) pinnacle of the roof-comb 69.7 m.

From the lofty platform of the pyramid of Great Temple IV there is a magnificent view toward the east across the boundless sea of forest trees. High above it rise Great Temples III and II, presenting a rear view, while Great Temple I is seen from in front. But however far the eye may travel in the direction of Belice, nowhere is a watercourse or the surface of a lake to be seen. What hidden treasures may not the forests east of Tikal reveal to us? Meanwhile the veil of mystery, which enveloped Naranjo, has been successfully lifted.

I examined the region to the west, the south and the north of Great Temple IV, but found no more ruins.

The Northern Part of the City, Beyond the Long Line of the North Ravine. Scanning the northern horizon from the platform of Great Temple I, a high wooded knoll can be discerned opposite its north side and lying beyond the north ravine. In 1895 I entertained the idea that a group of ruins must be hidden there, and on my return to this place in 1904 I determined to explore thoroughly the whole strip of country lying to the north. I, therefore, climbed down into the ravine back of the northern group of temples — “the less northern acropolis” — and came up again by the opposite slopes. We found only unimportant mounds of débris on the way, and finally came to an eminence levelled off at the top to form an oblong rectangle. Upon this natural, but regularly graded and shaped platform, two ruined temples of the type peculiar to Tikal, stand opposite each other. Each has the usual pyramidal substructure. The temple on the east end of the terrace turns its façade to the west and has a flight of stairs on the west side of its pyramid. The temple on the west end of the terrace faces east and the stairway is on the east side of the pyramid.

In front of the east temple, that is on its west side, three large thick stelae stand in a row, each with its circular altar before it. The middle one has a fourth stela placed in front of it with a circular altar in the usual position. All these stelae are without sculpture and are very much cracked and entwined by the roots of gigantic kopó trees. The west temple has no stela in front of its east side. Adjoining the north side of the substructure of this temple is a large, low, limestone rock, which the ancient builders were evidently unable to quarry wholly away. On the north side of the terrace is a little rectangular court enclosed by low masses of débris and having an entrance on the east. These masses of débris are doubtless the remains of a series of small chambers opening on the court. In the centre of the little court stands a large, thick stela, 2½ metres of which show above the ground, while at least one metre is doubtless sunk deep in the soil. The stela is

105 cm. broad by 55 cm. thick. Close before it is a large circular altar 164 cm. in diameter. Altar and stela are plain on both sides. A young kopó tree holds the stela in its grasp. The south face of the stela turns exactly to the south of the magnetic needle; in other words, the south face of the stela is placed exactly at right angles with a line drawn from the magnetic north to the magnetic south.

In several instances we observed in Tikal that façades faced exactly in accordance with the magnetic needle, while in other instances there was a deviation of 5° to 10° in different directions. The southern edge of the terrace is occupied by a long mound of débris, doubtless the remains of a structure containing a double row of chambers.

In the rear of the solitary stela with the large circular altar, the north side of the terrace has a very long downward slope. The territory to the north of it was diligently searched but to no avail, as the ruins plainly end at this point, while in a westerly and easterly direction we found architectural remains of imposing dimensions.

Proceeding first in a westerly direction we come to an oblong mass of ruins. This was once a two-storied edifice with a certain projecting addition on the east side; not far from this structure, still keeping to the west, rises a ruined two-storied edifice of considerable size still giving evidence of the original plan of construction. Upon a massive substructure rises the first story with, presumably, three chambers in front each with a corresponding chamber in the rear; otherwise we must assume that the back part of the structure was a solid mass of masonry. The second story was centrally placed with reference to the whole structure, receding some distance from the edge of the roof terrace, and seems to have consisted of but one large apartment, which is still partially preserved, and the walls and vaulted ceiling of which show stuccoing of exceedingly neat and smooth workmanship. The façade of this structure faces the east. At the back it is supported by strong, almost perpendicular retaining walls and faces a deep ravine which runs transversely and is doubtless a branch of the great north ravine. The plaza in front of the east side of the edifice is bounded north and south by a long mound of ruins.

Leaving the terrace of the temples and turning east, our way leads past some unimportant ruins to a group of four sepulchral pyramids. That is, the pyramids rise in steps and have stairways on all four sides leading to the platform on top, which has no stone temple of any kind.

The first pyramid (approaching from the west) has no stela or circular altar belonging to it, but has instead a little court to the north which seems to be in some way connected with it. This court is surrounded by a rectangular wall with an entrance on the south and is the third of its kind found in Tikal. The perfectly plain walls of this court are built of smooth, hewn blocks of stone, and are for the most part well preserved. On the outside

this wall is about 8 m. broad and $13\frac{1}{2}$ m. long, and in the middle of the court formed by it stands a large circular altar, which is ornamented with bas-reliefs on the upper surface, and on the cylindrical surface of the sides. The designs on the top are very much impaired by the rains, as can be imagined, while those on the cylindrical sides are better preserved being half covered up with earth. I designated this solitary circular altar No. VI. No vestige of a stela was found near this altar.

To the east of the second pyramid and near it, but on a somewhat higher plane, is the third pyramid, which has no stela on any side. The fourth pyramid rises a little further to the east, but on the left hand side, as we are moving. Eight stelae, each with its circular altar, stand side by side in a row before the west side of this pyramid. On the line of the architectural centre, a little in advance of the others, stands a ninth stela, also with its circular altar. All these nine stelae and their altars are perfectly plain.

Proceeding in a southerly direction from Sepulchral Pyramid 4, we found the area, on which the pyramids stand, bounded by a long mass of débris with no remnants of masonry walls projecting from it.

Behind this ruined structure a slope leads down to a ravine, doubtless a branch of the great north ravine. Crossing the ravine, and climbing the opposite slope, the explorer comes to the rear of the Great Palace of Twenty Chambers, which forms the northern boundary of a square enclosed on all four sides by large structures.

The Palace of Twenty Chambers (Plan, Fig. 7). This palace is 66 m. in length and rises on a massive substructure on the side fronting the square, while at the back, toward the ravine, it is supported by high retaining walls. The middle part consists of double rows of chambers, that is, a row of five front chambers each with a corresponding chamber in the rear. But it should be noted that the central front chamber and the one in its rear each has a small lateral chamber opening into it on the right and on the left. Each of these has a very small window (air-hole) in the outside wall as well as in the longitudinal partition wall.

These chambers are each 720 cm. in length excepting the small lateral rooms which are only 340 cm. long. Each chamber is 227 cm. wide. The height of the front apartments from the floor to the truncation of the wedge-shaped vaulting is 445 cm. The middle part of the palace finishes at each end in a transversely placed chamber with two small rear chambers. At each end of the south façade the projecting transverse chamber forms an angle into which a little vestibule is built, with a small doorway leading into the adjoining rear chamber.

The façade is almost entirely in ruins and exactly faces the south of the magnetic needle. As it so often happens in Tikal that the buildings face

exactly in accordance with the magnetic needle (of our own epoch), it is difficult to determine whether this circumstance is owing to accident or design. The frieze on the projection of the left wing (on the observer's right) has a solitary remnant of ornamentation; it is a grotesquely conventionalized face surrounded by scroll-work.

Opposite the Palace of Twenty Chambers, toward the south, is another palace of equal length, but of greater breadth and height, which once consisted of two stories. This palace had façades and chambers on the north looking on the great court as well as on the south facing a ravine. Unfor-

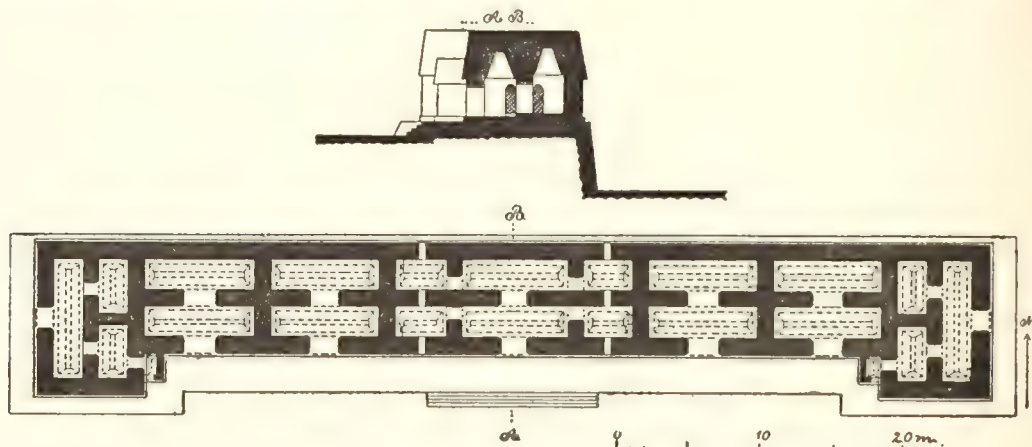


FIG. 7. — TIKAL: Plan and Section of Palace with Twenty Chambers.

tunately this palace is in such a state of demolition that I found it impossible to draw a reliable plan of it. It seemed to me that this south palace (with reference to the court) had chambers on the north side of the first story, but I could not determine whether in a single or double row. Of the chambers on the south side (facing the ravine) several are still preserved. They are probably rear chambers, while the front ones are totally in ruins. On the wall in one of the former I found a rude incised drawing unmistakably of Indian origin, but done long after the evacuation of the city. The second story, which recedes from the edge of the terrace roof, both on the north and south sides, plainly had a double row of apartments. The court is bounded on the east by the ruins of a structure consisting, I think, of five chambers in a row. Its façade faces the west.

The west side of the court is closed in by a now ruined structure of presumably five chambers raised above the common level by its high and massive foundation. The façade undoubtedly faced east.

Neither stela nor altar was found in the spacious court, although a thorough search was made.

To find this group of structures it is necessary to descend the north slope of the Great Terrace without buildings to the east of Great Temple I. By proceeding northward from that point the group is reached.

Let us now take as our point of departure Great Temple V and the lesser Acropolis on the west, and keep a westerly direction on the farther side of the south ravine.

The best way to reach Great Temple V is to enter the south ravine at its mouth near the south wing of the Great Palace of the Grooved Walls, and leaving the lofty palaces of the upper city on the right, to proceed to the architectural centre line of the Great Temple. Arrived at that point, turn to the left, ascend three terraces (a large one, a small one and finally another large one), and the great stairway is reached on the north side of the pyramid on which Great Temple V stands.

*Great Temple V*¹ (Plate 6). The façade of this stupendous structure almost exactly faces the magnetic north. The base of its pyramid is also a step running around the four sides. The offsets of the pyramid — probably nine in number — are so completely broken down, that their shape can no longer be determined, not even after examining all four sides. I assume that the steps of this pyramid showed the peculiar recessing at the corners, and that the top step had smooth sides, while the eight lower ones showed the same horizontal divisions as those of Great Temples I, III and IV. The stairway, measured at the bottom, is 20 m. in breadth, but somewhat narrower at the top. The walls on either side of the stairs are well preserved and project considerably at the base. Nevertheless the stairway is so steep that it is advisable to have a rope fastened to a tree trunk above to use as an aid in climbing. The length of the pyramid measured at the first step on the north side (not at the base) is 55 m. The breadth, no doubt, is considerably less.

Above, on the platform, the temple proper rises on a plain, slightly projecting substructure $1\frac{1}{4}$ m. high in front, and 70 cm. higher at the back. In the centre of the north side there are, as usual, a few steps leading up over the substructure to the doorway of the first and only temple chamber, which is very small.

The whole façade measured from corner to corner is 22 m. 68 cm. Breadth, measured on the line of the architectural centre, is 790 cm. The doorway is 218 cm. wide and 228 cm. high and is spanned by nine round tsapotl beams. The temple chamber is 4 m. in length, only 82 cm. in breadth and 480 cm. in height.

Some treasure seeker, by the way, has made an ugly break in the enormously thick masonry of the longitudinal rear wall of the temple chamber. The opening reaches to a considerable height and the débris fills up and disfigures the entire apartment. Breaks of this kind in the structures of Tikal are ascribed to "Colonel Mendez" who has left the reputation

¹ Plan not received. See No. 2, Figs. 33, 34, for plan and cross section. — EDITOR.

behind him of a ruthless treasure seeker. It seems that this "Colonel" instead of keeping in order the fugitives settled near the aguada, shamefully employed them to perform these acts of desecration, and doubtless brought more men with him from San José and San Andres for the same purpose.

The diagonal view of the entire construction, which is here presented to the reader (Plate 6), was taken from an elevation to the west of it. The picture shows the considerable projection of the stairway and the almost complete demolition of the nine offsets. The frieze of the temple is high and has a slight inward pitch, and shows faint traces of five large fantastic ornamentations, the central motif of each being a gigantic face.

Above the roof-terrace rises the stupendous tower-like roof-comb with backward slope still plainly showing three of its original sections. There are reasons for thinking that a fourth or even a fifth section with window perforations, now broken down, surmounted the whole. The façade (the north side) of the entire roof-comb displays the most elaborate ornamentation imaginable.

The view of the upper city opposite, enjoyed by the ancient priests from the platform of this temple of the palaces, must have been one of great architectural splendor.

The height of the pyramid from the levelling off (considered as the third terrace from the bottom of the ravine) to the platform of the truncation (including the 2 m. of the base) was estimated at $35\frac{1}{2}$ m. From the platform (inclusive of the substructure of the temple) to the present top of the roof-comb the height was calculated at 21.8 m. The total height, then, of the structure from the levelling off (the third terrace) to the highest point of the roof-comb would amount to 57.3 m. To which can be mentally added $8 + 4 + 8$ m. for the three lowest terraces on the north side.

As it may interest some readers to compare the height of the five Great Temples, I give them as follows:—

Great Temple I. Façade facing west. Height of pyramid, $29\frac{1}{2}$ m. Height of temple, 17.7 m. Total, 47.2 m.

Great Temple II. Façade facing east. Height of pyramid, 21 m. Height of temple, $22\frac{1}{2}$ m. Total, $43\frac{1}{2}$ m.

Great Temple III. Façade facing east. Height of pyramid, $32\frac{1}{2}$ m. Height of temple, 21.7 m. Total, 54.2 m.

Great Temple IV. Façade facing east. Height of pyramid, 45 m. Height of temple, 24.7 m. Total, 69.7 m.

Great Temple V. Façade facing north. Height of pyramid, $35\frac{1}{2}$ m. Height of temple, 21.8 m. Total, 57.3 m.

Quite near the foot of the east side of Great Temple V stands a pretty little palace on a massive substructure with a stairway on the east. The

palace proper has but two chambers, with graceful stepped vaultings. The now broken down façade faced the east.

The frieze, still preserved at the back of the edifice, has a slight inward pitch and is quite plain. But it seems probable that over the two doorways on the east and at the two corners on the same side, the frieze had some kind of ornamentation.

The Lesser Acropolis, West of Great Temple V. To the west opposite Great Temple V rises a hill, the top of which has been levelled off, thus forming a square terrace. There are buildings on all four sides, while in the middle (in the court) a small three-chambered temple surmounts a pyramidal substructure. The eastern slope of the hill facing the west side of Great Temple V still shows terraces with remains of small structures. Climbing up this slope brings one to the eastern edge of the upper terrace where, besides a small edifice with only one chamber, stands a larger one with a double row of chambers, three in front, with three behind, and one placed transversely at the southern end.

The southern end of this seven-chambered structure adjoins the south structure which borders the south side of the court.

This south structure has ten chambers, two transversely placed at the juncture of the two buildings, and four running longitudinally with entrances on the north and, corresponding with these, four in the rear with entrances on the south.

The west side of the court is occupied by the west structure standing on a higher level and adjoining the ten-chambered structure. This west building probably had a double row of transversely placed chambers at each end and a fourfold row of three each running the length of the middle part, with entrances on the east, and on the west. There was, in addition, a small chamber in the southwest corner of the court upon which the doorway opened. Accordingly this structure must have had 28 chambers. It is not unlikely that some kind of a superstructure was supported by the very thick partition walls (the third and fourth counting from the court).

The north side of the court is closed in by the north structure, which has a double row of longitudinal chambers of different size with doorways on the south and north, two transverse chambers at the west end and another inserted between the longitudinal apartments near the east end. The little pyramid in the court has a stairway on its east side leading up to the platform. The temple upon it is partially in ruins, but still shows that it had the typical threefold division. (My description of this lesser or third Acropolis can be comprehended clearly only by consulting the plan of the city.)

Descending by the western slope of this little citadel, a lower terrace is reached, facing west, which, with a certain elongation, forms the entire east

side of an oblong square closed in on all sides by small palaces and temples. We will begin the description of these buildings with the row on the east, where we came out on climbing down the western slope of the hill.

At the north end of the terrace is a small heap of débris. Then follows a row of seven temples, differing in size but all of the same fundamental type, as can be seen on the plan of the city. The façades of all face west. All have a stairway running up over the projecting substructure leading from the level of the square to the projecting platform. The platforms of the first five temples are all merged at the back in the terrace, while the platforms of the sixth and seventh are independent. Before the stairway of the central temple, which will be specially described, stands a large, thick, but perfectly plain stela with its circular altar.

*The Central Temple of the Row of Seven.*¹ This fourth temple is the largest of the seven. The front chamber is the longest and, in fact, the only one, for, instead of the second chamber contracted at both ends, and the third one with the ends again extended, a solid mass of masonry was constructed to support the very massive roof-comb. The façade of the temple (of the front chamber) is unfortunately all broken down, which is much to be regretted, since its frieze must have been tastefully ornamented. I therefore took a view of the rear only (east side) of the structure, which also shows a little of the southern end of the back section (what otherwise would be the third chamber). (Plate 8, Fig. 2.) The photograph shows how, even in the construction of the lesser temples, the rule was followed of letting a central portion of the rear wall project a little way; in this case 25 cm. The measurements of this rear wall were, in length, $277 + 625 + 277 = 1179$ cm. The length of the west façade is about 14 m., since, as already stated, the first chamber is always a little longer than the third. A shallow niche can be seen in the projecting central part, and each end of the back section has a similar niche. The frieze between the upper and lower cornice shows interesting ornamentation — in the centre of the middle piece a large grotesquely conventionalized face-mask (*un mascarón*) with large circular ornaments on either side, which may be regarded as the ear-ornaments of the face between. The inverted hook sign is deeply incised on the plane of the circles. The frieze on the retreating portions of the rear wall shows conventionalized cross-bones in the shape of two intersecting Vs. The frieze on the end wall visible on the photograph also has a grotesquely conventionalized mask.

The picture distinctly shows that the rear and side walls of the roof-comb were plain. The undoubtedly very rich figure-carving on the west side is now completely destroyed. It is possible that the roof-comb of these lesser temples consisted of a single ponderous body; on the other hand, the

¹ Plan not received. See No. 2, Fig. 37. — EDITOR.

solid mass of masonry in place of the second and third chambers seems to point to a roof-comb in two or three sections diminishing in size toward the top.

The south side of the Square of the Seven Temples is occupied by three palaces whose façades and doorways faced north (the square) and south (a *planada* on a lower level).

I was able to make ground-plans of the first and the middle palace, but the third is wholly destroyed. The second palace is the longest. All the palaces have massive substructures forming terraces on all sides, and naturally a deeper descent on the south side than on the north.

*The First of the Three Palaces on the South Side of the Square of the Seven Temples.*¹ On the north side toward the square this structure has a single gallery 17 m. 54 cm. in length. Three doorways on the north lead into this gallery, but the north façade is unfortunately all broken down. In the middle of the partition wall a doorway, spanned by twelve round tsapotl beams, leads to the middle one of the three chambers on the south which have each a doorway on the south side.

On the south, east and west sides it is clear that the frieze, which had a slight inward pitch, was quite plain. The exterior length of the structure was 20 m. 34 cm. The exterior breadth, 7 m. 63 cm.

*The Middle Palace on the South Side of the Square of the Seven Temples.*² This beautiful palace, constructed with extraordinary exactness and clearness of outline, consisted originally of a single gallery 27 m. 83 cm. in length, by 205 cm. in breadth, which was later subdivided into three chambers. The height of the gallery (or of the chambers resulting from it) is 465 cm. from the floor to the truncation of the vaulting. At its west end (or in the chamber at that end) there is a double bench, or pair of steps 58 and 65 cm. in height. Three doorways on the north side, and three on the south side lead to the gallery, all being spanned by tsapotl beams. These round beams were always cut from the heart of the tree (*del corazon del árbol*) and are hard as iron and almost indestructible. The gallery has a beautiful three-stepped, vaulted ceiling which may well have been the finest in Tikal.

Unfortunately this long, splendid gallery was at some later date divided into apartments, and for that purpose two partition walls 182 cm. thick were inserted, each with a doorway, and the two ends of the gallery were reinforced by walls 178 cm. in thickness. These insertions, it must be admitted, were executed with great care. For at the top they were not made to intersect vertically the original stepped vaulting, but the outline of each angle formed by the steps was conscientiously followed.

Wherever a treasure seeker, sniffing about for booty in such a ruin, dis-

¹ Plan not received. See No. 2, Fig. 38. — EDITOR.

² Plan not received. See No. 2, Fig. 39. — EDITOR.

covers a thick mass of masonry, a feeling of curiosity and greed is at once aroused within him, for people of his ilk have not the remotest idea of an architectural necessity. In this spirit some ruthless treasure seeker made disfiguring breaches in the thick mass of later inserted masonry. Could it have been the same individual who disfigured Great Temple V?

Setting up my photographic apparatus at the east end of the gallery, I succeeded in taking a very good view, which even shows the partitioning off into three apartments (Plate 11, Fig. 2). The character of the step-shaped vaulting can be recognized on the picture, also the round tsapotl beams, and also, alas! the disfigurement caused by barbaric intruders.

The exterior length of the structure is 30 m. 77 cm. Breadth, 499 cm. The frieze had a slight inward pitch and over every doorway and at each corner a large grotesque face with lateral scroll-work. These interesting frieze decorations are no longer in a condition to be successfully photographed, but are still a sight worth the traveller's trouble.

Of the third palace I can only say that its proportions were similar to those of the first palace, but its divisions into chambers can no longer be determined.

The north side of the square is occupied by two small heaps of débris and a terrace construction of considerable size, being a rather broad rectangular terrace with no buildings upon it. On the observer's right (toward the east) it has an extension of diminished breadth, on the east end of which stood a small temple with stairway and façade facing the square on the south. This ruined little temple still shows traces of the typical three-fold division. At the west end of the broader part of the terrace a sustaining wall, reinforced by buttresses, is still in fairly good condition.

The west side of the Square of the Seven Temples is occupied by a row of three temples and a terrace-construction. The edifices of this row, which are somewhat larger than those of the row of seven, turned their façades and stairways toward the west, toward a square on a somewhat lower level, which we will call the Square of the Five Temples, hence their backs were turned to the Square of the Seven Temples. All their façades are broken down.

We will begin the description of this row of structures with the first temple on the right (on the north) which is larger than the second, which in its turn is larger than the third. Each of the three temples stands upon a substructure, which forms a platform and has a stairway on the west side. All the temples show the typical threefold division, but in the third a solid mass of masonry takes the place of the third chamber. The first temple is the most spacious and most carefully carried out as to details. A narrow terrace separates the first temple from the second, which the third closely adjoins. Adjoining the third temple is an oblong terrace, one half of which

seems quite devoid of architectural remains while the other half has a pile of ruins which is highest in the middle.

The piece of terrace without buildings is adjoined at right angles by another terrace-construction having a projection at its northern end and no traces of buildings on top. A little further to the west, but standing within the square, is a fourth temple with the usual substructure and with façade and stairway facing west, and having the typical threefold division of the inside space. On the ground to the west of it are four piles of stones in a row (probably ruins of very small monuments), the two smallest in the middle and larger ones at either end. Near the most northerly of these piles begins a long drawn out mass of ruins shaped thus $\neg$, probably the remains of a totally destroyed row of apartments, embracing, as it were, on the south and west the largest sepulchral pyramid of Tikal, having stairways on all four sides and apparently no temple on the truncated platform.

The pyramid is about 20 m. in height. I could not determine the number of its offsets since their outline had become indistinct.

The space surrounding the sepulchral pyramid is closed in on the north by a fifth temple, with façade and stairway facing south (facing the pyramid). This temple has, as usual, the triple division; the third chamber, however, being replaced by a solid mass of masonry, as in the case of the third temple.

Adjoining the northeast corner of this temple is a small ruined structure having a ground plan shaped thus $\neg$, of which only a piece of the solid west wall remains.

To the south and west of the Square of the Five Temples and the great Sepulchral Pyramid there are no more ruins but only level country with quarries here and there.

Proceeding a few steps in a northerly direction from the $\neg$ -shaped ruins with the piece of west wall, and then crossing through a shallow ravine, the explorer comes out at the narrow, southern end of the Great Palace with the beautiful stepped vaultings in the east chamber of the first story.

This brings to a close what may be considered a very complete architectural description of Tikal, which will offer no difficulties if the general plan of the city and the detailed plans are carefully consulted. It is necessary to imagine that in ancient times the monumental sections of the city were surrounded by thousands of houses and huts built of perishable material, and covered with roofs of palm leaves. Furthermore, that for the support of a population numbering, no doubt, hundreds of thousands, the surrounding forests had given way to fruitful maize plantations, for only the cultivation of maize on a very large scale could have nourished so great a population. No doubt there were also reservoirs of water established here and there, which are not now to be seen.

The Incised Drawings in the Temples and Palaces of Tikal (Figs. 8 to 17). The walls of the chambers in the principal structures of Tikal were generally covered with the finest white stucco; upon this the occupants skilled in writing and drawing made incised drawings, presumably with a pointed flint or obsidian knife such as was commonly carried at that period.

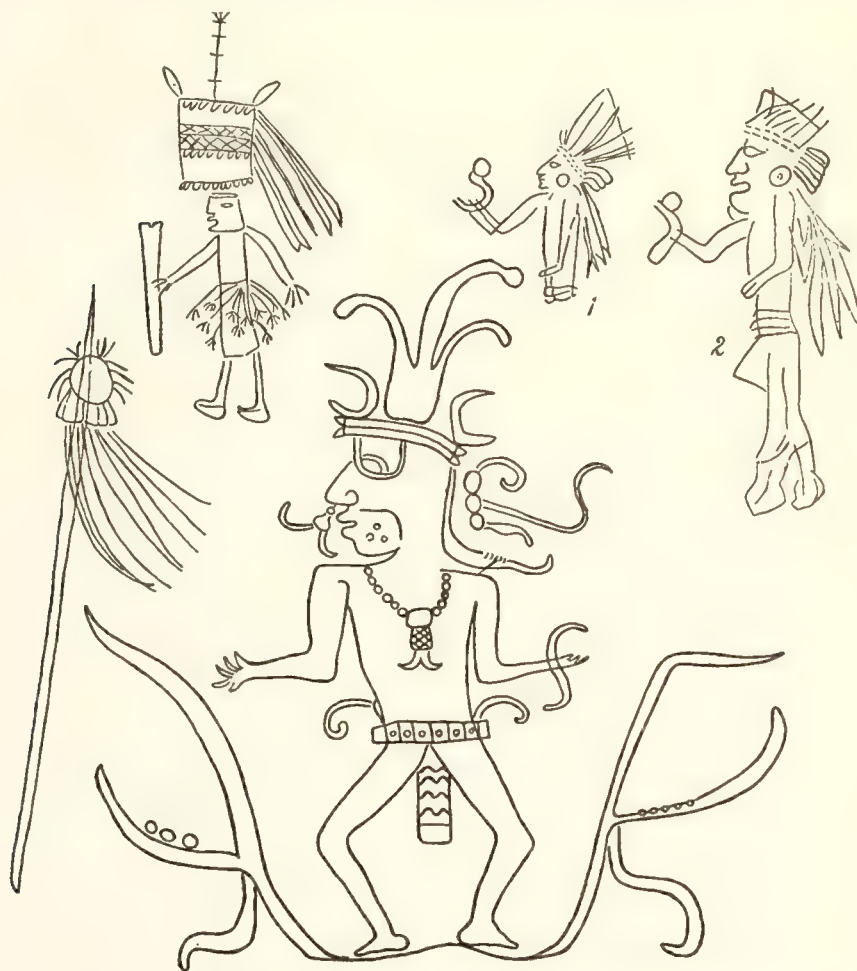


FIG. 8. — TIKAL: Incised drawings on walls of Temple II. 1 and 2 are together; the others are separate.

In the course of years a new coating of stucco was given to walls which had become soiled or injured, and whatever incisions they held were naturally covered. Therefore all the incised drawings copied by me must be regarded as having been made upon the very last coating of stucco.

These later coatings of stucco are, to be sure, no thicker than from 1 to 2 m., while the basis, that is, the coating of plaster on the walls and vaultings, is from 1 to 2 or more cm. in thickness. The stucco is so little inclined to scale off that it is impossible to get at any drawings on the under layer.

The process of tracing these incisions, which are for the most part very indistinct, is greatly aided by rubbing the surface of the incised walls with

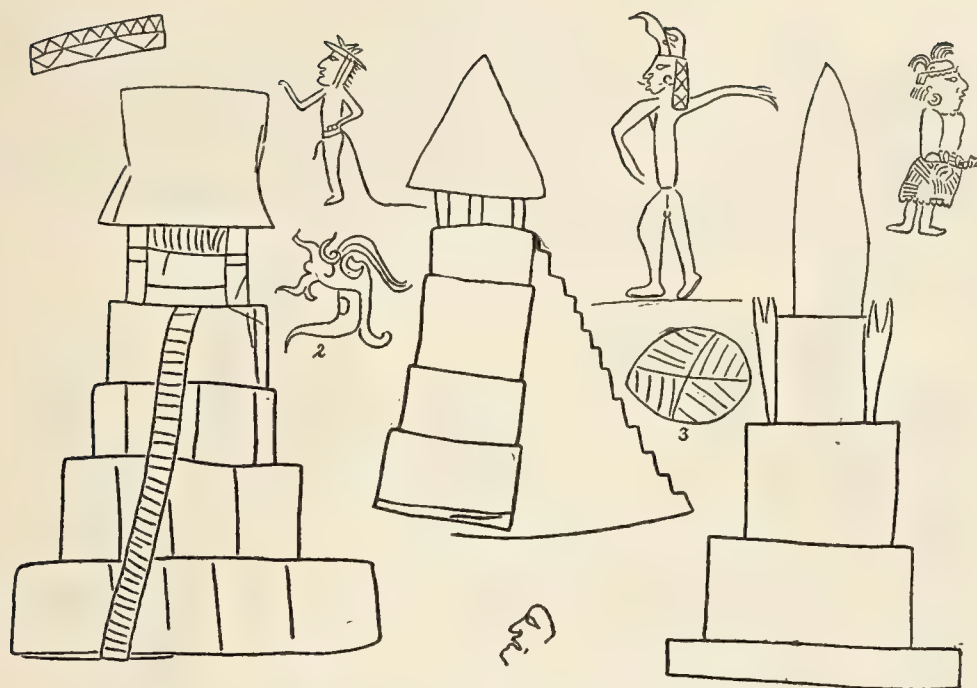


FIG. 9. — TIKAL: Incised drawings on walls of Temple II. All separate.



FIG. 10. — TIKAL: Incised drawings on walls of Temple II. 1-4 form one group; 5-7 form another group.
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dry, fine, black earth (or anything else available). This brings out the drawings very clearly. Sometimes it is necessary to run over the lines with a soft pencil. Rubbing in moist black color is generally unfavorable to good results. The best time to search for incisions is during the dry season, for the moist sticky moss, which covers many walls, is then quite dry and crumbly and easily brushed off.

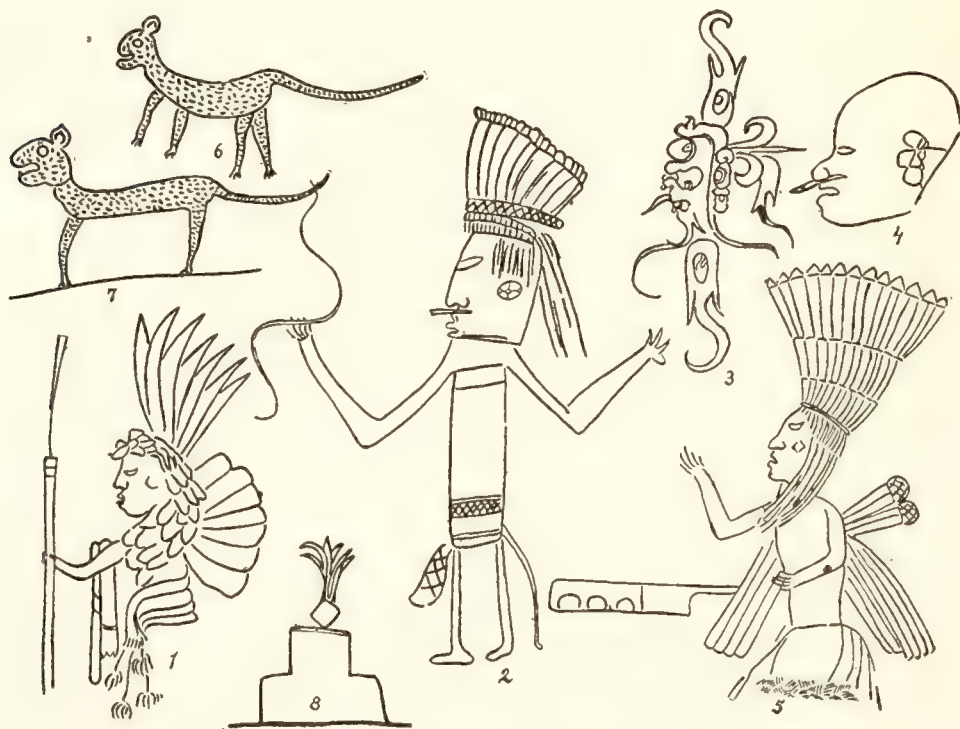


FIG. 11. — TIKAL: 1-5, incised drawings on walls of Temple II. 6-8, from walls of Palace of Two Stories opposite Temple V. All separate.

Since the incised drawings in the ten figures are perfectly clear and distinct, a description of them seems superfluous, and I shall confine myself merely to a few remarks.

Apparently the greatest variety and license regarding personal adornment prevailed in Tikal, every one carrying out his individual taste in such matters. Representations of women are scarcely ever met with on these smooth walls, because, no doubt, priests and scribes were chiefly the inmates of these monumental structures in which they pursued their calling. All mirthful or amorous allusions were precluded among men leading lives of serious meditation. Among these specimens of drawing, however, made during the leisure hours of the occupants of these edifices, there is much which cannot I think be found carved in stone but which might be compared with Maya or even with Aztec picture-writing. For example, the three drawings from the palace in which I lived (Figs. 11-17), representing priests (or deities?)

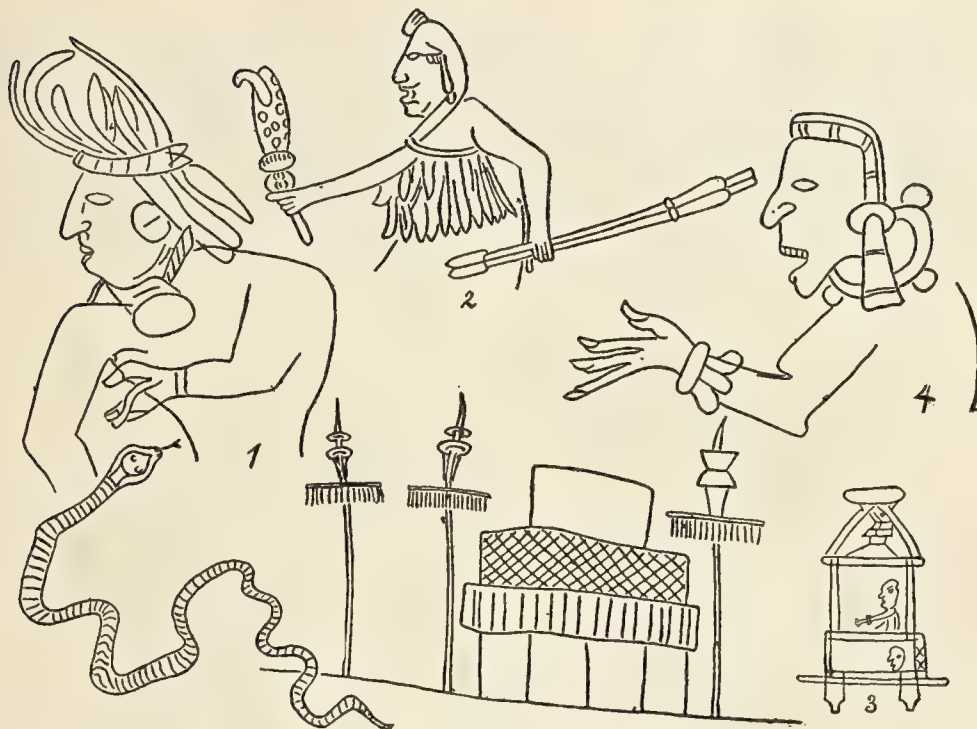


FIG. 12. — TIKAL: Incised drawings on walls of Palace of Two Stories opposite Temple V. No. 4 is from walls of Palace in rear of Temple III.



FIG. 13. — TIKAL: Incised drawings on walls of Palace of Two Stories opposite Temple V. All separate.

are strangely suggestive of similar figures in the Maya Codex of Dresden pp. 25-28. The personages are standing erect, and are holding the ceremonial staff in the outstretched hand. Two have animal heads.

Involuntarily the question presents itself: where did the Dresden Codex originate? Might it not have come, if not actually from Tikal, still from some Maya city in the present Department of Peten, and have been sent as



FIG. 14. — TIKAL: Incised drawings on walls of Palace of Two Stories opposite Temple V. All separate.

a sample of Maya picture-writing to Europe? At any rate, it did not originate in any of the large cities in the northern part of the peninsula of Yucatan, like Uxmal, Mayapan, Kabahacan, etc., and most certainly not in Chichen Itza.

The picture of an execution from Great Temple II of Tikal (Fig. 10, Nos. 5-7) also has a counterpart in the representation of a similar scene in the Codex Nuttall, p. 84. An executioner with savage mien, with the aid of a spear-thrower, is sending to the realms of death a criminal tied by his outspread arms to a stake. His wife is turning aside in horror and hastening

away! It is, of course, not improbable that the "criminal" was not a criminal at all, and that human justice in those distant times and countries was quite as often at fault as it is with us. At any rate, the rudely sketched female figure seems to suggest an underlying sense of disapproval.

The Stelae and Circular Altars of Tikal. For the sake of greater clearness I will describe the sculptured stelae as an uninterrupted series. A repe-

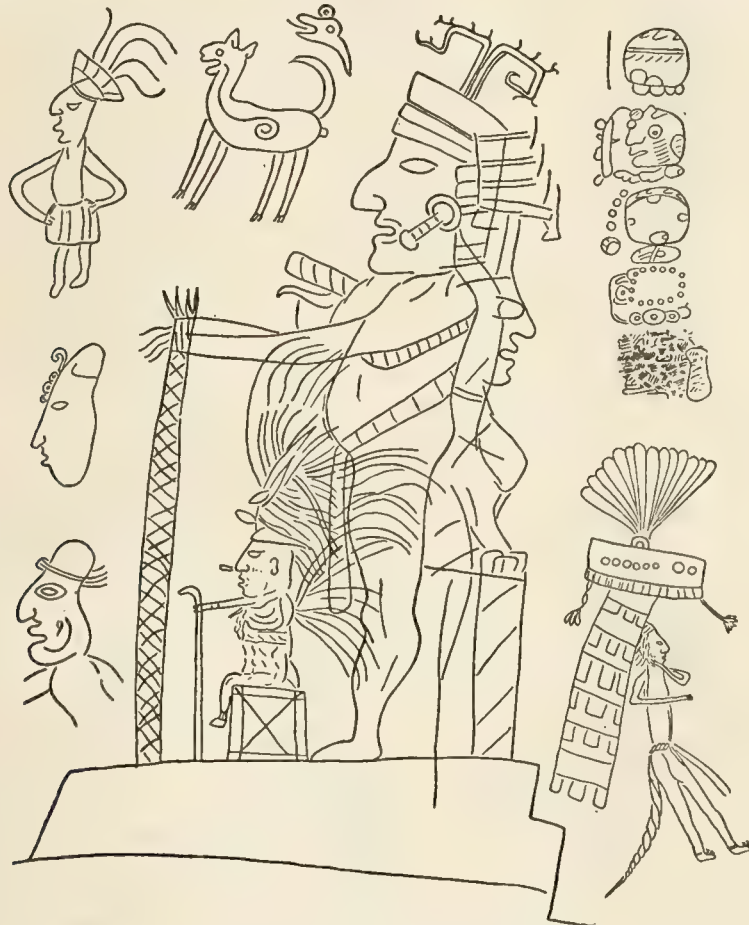


FIG. 15. — TIKAL: Incised drawings on walls of Palace of Two Stories opposite Temple V. All separate.

tition of some of the remarks previously made in the general course of the description of the ruined city will, of course, be unavoidable.

In its wealth of stelae and circular altars Tikal is unequalled among all the known ruined cities. More than one hundred stelae can be found there and nearly every one with its own circular altar. But of these numerous stelae most of which were still in an upright position only a relatively small number had bas-reliefs on one, two, three, or on all four sides. My careful search resulted in finding only seventeen stelae with bas-reliefs, of which only three, owing to complete demolition, could be photographed. Of cir-

cular altars only six showed bas-reliefs, and of these only one could be photographed, but that one is a choice specimen of Maya art.

It may be assumed as a matter of course that all these stelae, now plain, were at one time covered with a smooth coating of stucco upon which all kinds of figures and picture-writing had been executed in outline, or that,



FIG. 16.—TIKAL: 1-4, incised drawings on walls of Palace of Two Stories opposite Temple V. 5-9, on walls of Temple II.

at any rate, they had been covered with fiery red paint. The altars were also no doubt painted red.

The limestone used for the stelae and altars of Tikal is of a light yellow color and of a hard, fine grain. It can be broken into pieces and calcined, but unlike certain stelae of Yāxhá, for example, it is not turned into a heap of rubble by the action of the elements or by the impact of falling trees.

Stela 1 (Plate 12, North side; Plate 13, Figs. 1, 2, 3, West, South, and East sides). I consider this stela as having replaced No. 2, which was doubt-

less broken in pieces during some public calamity and then set aside. Owing to their present imperfect condition and notwithstanding many deviations, the two stelae must be considered together in this description, since they supplement each other.

In 1895 I had already discovered this magnificent stela, then almost completely buried, and I sought in vain for the top, which had been struck off



FIG. 17.—TIKAL' 1, incised drawings on wall of Palace of Two Stories opposite Temple V. 2, 3, on walls of Middle Palace formerly of one apartment.

by a falling tree and carried off, who knows by whom or whither. As the men I had with me at the time were so very unwilling to aid me, I had to give up all thought of excavating this stela. But the expedition being better organized on my return in 1904, I at once began the work of uncovering it. To enable me to photograph the stela on all four sides, it was necessary to clear away the débris for a space of 4 metres in all directions. Thus the missing fragment, if extant and hidden by débris, would necessarily have come to light together with the circular altar belonging to its south side.

Instead, we came upon the upper half of a second stela lying deeply buried under débris, not far from the eastern narrow side-face of the first one. Consequently Stela 2 must have been broken up by the inhabitants of Tikal themselves and not by modern iconoclasts, nor by a falling tree, in which case the lower half would have been found near by.

Stela 1, as well as the fragment of Stela 2 preserved as a memento, stood before the stairway, close to the south side of the base, 4 m. high, of the structure, which contained a front chamber with three small ones behind it; that is, they stood upon the narrow space between that structure and the back of the pyramid of the third temple of the group on the north side of the principal square. The falling of the south façade of the structure just mentioned, covered the stelae with débris and thus preserved them from destruction.

The seclusion of the spot, on which these two stelae stood, makes it appear improbable that human sacrifice was ever performed before them, because the bloody ceremony would then have remained invisible to the public. That was also, no doubt, the reason why there was no circular altar placed before them. Nevertheless, these two magnificent stelae must have been of great importance to a select initiated few, and not to the populace, for they are unique specimens of their kind and may be regarded as the finest in Tikal. The present height of the stone from the very bottom to the highest point of the fracture is 175 cm. to which one metre at least should be mentally added for the missing portion. Breadth at the top, 64 cm. Thickness, 44 cm.

South Side together with the East and West Sides. Since there would not have been room on the comparatively narrow south side of the stela for the elaboration of the ceremonial bar and the other accessories, they were carried over upon the narrow side-faces by which means a total breadth (at the top) of 152 cm. was gained for the bas-relief as a whole. For the better comprehension of this combination, the three sides are shown upon one plate.

The symbolic glyph-base of the figure on the south side was almost wholly let into the cement pavement; therefore it must have been invisible even in ancient times, for it made its appearance only after we had cut away the hard, thick layers of cement. To the right of the observer a conventionalized head can be seen, of which the very deeply carved eye, the ear-disk with a little hole and the large upturned nose can be plainly distinguished. To the back of this head is joined a large conventionalized eye, and to this a square with rounded corners from behind which appear serpent-heads diagonally placed, all of which may be regarded as the ear-ornaments of the conventionalized composite head. The ancients were fond of these symbolical compositions, which are incomprehensible to us.

Standing upon the great glyph-base a personage of high rank is represented from the right side, the left foot a little advanced, the face turned

to the left, while the chest with the arms holding the ceremonial bar is represented in front view.

It is probable that the main figure of the relief represents a priest of high rank, not an actual deity, while the other numerous representations of figures might be regarded as deities and mythological personages pertaining to the Maya heaven.

The very elaborate buskins show the soles, the little straps drawn between the toes, and attached to the front of each a head in profile placed upside down (seen by inverting the picture). From the top of the leggings proceeds an ornament curving outward, ornamented with feathers and ending in a small double head which may be regarded as either right side up or upside down.

The almost concealed loin-cloth composed of scales and bead-work is held at the waist by a magnificent girdle ornamented with St. Andrew's crosses. The fantastically conventionalized tiger-head resting on a roll with three pendants is doubtless meant to mark the centre of the girdle. The small half recumbent figure on the right hip also rests on a roll with triple pendants. The corresponding ornament on the left hip is of course invisible.

A long chain hangs down from the neck and curves to the right below the girdle. Within the curve is an expressive profile mask resting upon a serpent, and from this combination depends the ornamental flap with a heavy tassel. On the left side apparently below the belt is a large bowknot with a long pendant hanging obliquely, into which is carved a profile face with a ball below. To the ball is joined a head in profile with a roll and pendants under the chin. The whole may be regarded as the finishing ornament at the back of the belt.

The body above the hips is probably nude. The necklace, if there is one, and any other possible ornaments are concealed by the ceremonial bar held in a horizontal position. The handsomely elaborated cuffs at both wrists differ in form from those usually seen.

The face is in profile and has a crescent-shaped ear-ornament (of flint), from which proceeds elaborate ornamentation including a pendant of disks, which serves as the common ear-ornament of two half masks turned in opposite directions in such a manner that one serves as a support for the chin and the other for the back of the head.

The fracture runs obliquely across the forehead, and since the piece broken off has mysteriously disappeared, the fairly well preserved helmet on Stela 2 must furnish us with an approximate idea of the head-dress on No. 1. Presumably the helmet consisted of a great deity-mask with proboscis and certain elaborations at the back, surmounted by a symbolic composition. A plume of feathers hung down behind, the ends of which can still be seen in the upper left hand corner.

A mantle of feathers forms the background of the whole relief. It rises

in flat arches from both shoulders of the Ahaucan and then turns the corner to cover the adjoining narrow side-faces, diminishing in width as it falls to spread out again near the ground in C-shaped curves. It is most richly ornamented with mythological figures and scroll-work and edged with a row of beads and feathers.

The ceremonial bar displays great conventionalized open jaws at either end. In the jaw on the observer's left (turning the west corner) crouches the singular little figure of a god with the familiar proboscis and plainly showing the perforated ear-disk. The forehead is twisted into a mask looking backward. In his outstretched left hand the god holds a disk with four points (two of them invisible).

A serpent, rising in coils, rests on the lower mandible of the open jaw on this side and between its little jaws holds a head with a chin support and a pendant which again seems to develop into two grotesque faces.

At the bottom of the left side facing the C-shaped curve described above, is an open jaw holding a face in profile with closed eyes. Upon its visible left cheek is a small crescent and an S-shaped object is applied to the corner of the mouth. A round bead is attached to the nose or to the upper lip, and two wavy bands, which I cannot account for, issue from the mouth.

Behind the scroll-work proceeding from the open jaws rises a cylindrical shaft common to both the south and the west sides of the stela, and together with it on the west an ornamental post. An apelike manikin clasps the shaft with arms and legs, and turns his face toward another manikin developed from the scroll-work, with a second face in profile set above his own.

A central division is formed by a sacrificial knife projecting horizontally from the ornamental post, the point ending in a bent plus sign (swastica) to which is joined a convolution of scrolls enclosing a grotesque half-mask.

Coiling above the ornamental post, above the apelike manikin, a serpent can be seen with clearly defined heart-shaped tail and peculiarly formed head. While above the swastica another manikin develops from scrolls, who, with a second profile head set above his own, stares at the serpent.

The fringe of beard on the lower mandible of the open jaw forming this end of the ceremonial bar can be seen just above the serpent's head.

Turning now to the elaborated jaw of the ceremonial bar extending over the east side-face we see a manikin crouching in its curves and turning his *osumatli*-face backward. His uplifted right hand holds a kind of devil-mask with a curved object set with points attached to the chin.

Here too a coiling serpent rests on the end of the lower, bearded mandible and holds a half obliterated round face with a gracefully curved pendant in its open mouth.

The C-shaped end of the feather mantle, on this side of the stela as on

the other, contains an open jaw elaboration holding a profile face with closed eye, the whole design facing the curved hem of the mantle. Behind this composition rises a cylindrical shaft with its parallel ornamental post marking the transition of the south face to the east side-face.

At its lower end the cylindrical shaft is clasped with arms and legs by a manikin with a fierce monkey face, apparently engaged in a lively conversation with the double-headed manikin opposite developed from the scrolls.

Here too there is a sacrificial knife above the double heads, projecting horizontally from the post and having a swastika at its point, to which is joined scroll-work encircling a half-mask.

Over the head of the fierce monkey-faced man a serpent twines about the cylindrical shaft, and at the upper end of the ornamental post, close under the beard-fringe of the open jaw at this point, can be seen a monkey-mask resting upon the ornamentation of the post (round beads with feather pendants), while opposite with questioning gaze is the head of a scroll-evolved manikin with the usual topping of a second profile head.

There were no vestiges of color found on this bas-relief, which had been executed by a master hand and shows only the natural light color of the very superior quality of stone. All the mythological accessories of the relief are puzzling figures.

North Side. Two vertical rows of glyphs are cut into the smooth surface of this side. The seven lowest glyphs of each row are well preserved. How many there were above the line of fracture it is difficult to conjecture.

Stela 2 (Plate 14, combination of West, South and East sides). The greatest length of the piece found was 120 cm.; breadth, 65 cm.; thickness, 38 cm.

South side, together with east and west sides.

I will preface this description by remarking that the general arrangement of the relief on Stela 2 is similar to that on No. 1, but that many deviations appear in the details. Also the position given to the high priest on Stela 1, though similar to that on No. 2, differs in direction; in other words, while the face of the principal figure on No. 1 turns to the east, that of No. 2 turns to the west.

Keeping this change of direction in mind we may assume that the personage of high rank on Stela 2 — presumably also standing on a great glyph — was represented from the left side from the feet to the girdle, the right foot being a little advanced, while the chest together with the arms bearing the ceremonial bar are presented from in front, but the face is turned to the right. Above the line of fracture the girdle can be seen ornamented with a St. Andrew's cross and knobs with a central depression.

The fine profile head on the observer's left should probably be regarded as the central ornament of the girdle, while the head on the observer's right

might be the ornament of the left hip, the one on the right not being visible. The head on the observer's left shows plainly the S-shaped tooth, or object externally applied to the corner of the mouth, the nose-bead and perforated ear-disk. This head is overtopped by another with an elongated saw-toothed upper lip under a long projecting nose with round bead ornament inserted in the angle formed by nose and lip.

The head on the right shows what may be called a covered eye. A small S-scroll can be distinguished at the corner of the mouth, also the ear-disk with perforation. Both heads rest upon a similarly ornamented bar with large pendants.

The figure in this relief also has a chain falling far down over the ceremonial bar and presumably curving to the left. A grotesque face under the only visible St. Andrew's cross of the girdle might be regarded as the ornament from which the flap depends. The cuffs at the wrist are very elaborate and the closed hands have the same position as on Stela 1.

Above the ceremonial bar, over the right hand of the priest, can be seen a head in profile, probably meant for the central medallion head of the neck or breast ornament. This head is overtopped by a half head with a proboscis, which supports the chin of the priest, his face being in profile. An animal's head looking in the opposite direction is in its turn overtopped by a half-mask with the proboscis curved downward. The chain seems to fall from the first of these heads. I might add that a strangely conventionalized profile head seems to rest on either shoulder.

The large ear-disk of the principal personage has the same horseshoe shape as that on Stela 1. A small crescent $\frown$ is applied to the cheek and from the corner of the mouth a S-scroll curves downward and seems to continue at the top obliquely across the nose, which however does not preclude the application of a nose-bead. The head is surmounted by the familiar deity-mask, this time with the proboscis turning upward. Scroll-work is attached to the front of this fantastic head, and a confused elaboration of scrolls develops at the back and above its head-dress of symbolic horizontal and vertical lines; the helmet rises in a lofty construction. On the front of the head-dress is a curve $)$ within which is a head in profile. A plume of feathers falls from the scroll-work at the back.

From each shoulder of the priest the feather mantle rises in the form of a flattened arch and turning to cover the east and west sides of the stela, forms a background for the mythological accessories. Before describing what is held by the open jaws of the ceremonial bar, I would call attention to the unmistakable sign for 9 (a bar with four dots), placed beside the large glyph over the conventionalized face on the right shoulder within the curve of the mantle. It seems to have a counterpart in the sign for 7 (a bar with two dots), placed before it over the head on the left shoulder.

Within the open jaws of the ceremonial bar, which turns to the west

side-face of the stela, a deity is seen sitting in Turkish fashion upon a stone bench. The left arm with a cuff at the wrist is perfectly distinct, also a half-mask with downward curved proboscis close under the chin, and another turning in the opposite direction under the ear-ornament, which has the same horseshoe shape as that of the principal figure. The eye appears to be closed.

The head-dress shows first a grotesque face with a proboscis curved downward, backed by another smaller one looking in the opposite direction. Surmounting the first face is a second with a smaller one behind looking the same way. Above these a third face is placed, surmounted by a fourth surrounded by scrolls and extending beyond the border of the feather mantle.

Within the jaws on the east side crouches an exceedingly fierce looking god holding an uncertain object obliquely across his breast with his raised right hand, and having a head-dress of such confused design that it defies description. Before the sinister eye of the god, there seems to be a raised nose-ornament and below the eye and the ornament there is a double curve which obscures the mouth. The ear-ornament is not round but composed of points.

Among the scroll-work of the head-dress belonging to this fear-inspiring face, an ear-disk with perforation can be distinguished attached to a grotesque mask. An oval design surmounted by scrolls rises obliquely beyond the edge of the feather mantle forming a finish for the whole.

Below the bearded lower mandible of the open jaws on both the east and west sides are four groups of chronological heads looking upward. These groups are separated vertically by a bone and horizontally by a row of round beads with feather fringe. On the west side only one of the heads is preserved, but on the east side four of these glyptic heads can be plainly distinguished (by turning the picture either way). There were no remnants of color found on this beautifully executed bas-relief.

The North Side. This side shows two vertical rows of large glyphs, but so badly worn away that they could not be photographed.

Along the north side of the principal square extends the first terrace on the south side of the group of temples situated there. The terrace rises barely three metres above the level ground of the square.

Of the four temples with south façades constituting the front row of the group, the one at the west end of the terrace (on the observer's left) had no stela before it, but the second has four stelae at the southern foot of its pyramid. Of these stelae two are plain and two (Nos. 3 and 4) have relief carving. There is a circular altar in front of each of the four stelae, but only the one belonging to No. 4 has relief-work.

Stela 3 (Plate 15, combination of West, South and East). Height of stone from base line of figure to the very top is 153 cm., to which should

be added about 45 cm. for the part sunk into the cement pavement. Breadth, 58 cm. Thickness, 39 cm.

South Side. The personage on this side, presumably a priest, is represented from the left side and standing with the right foot a little in advance. The feet are protected by plain, but high buskins. The loin-cloth is held about the waist by a broad girdle, with a large profile head attached to the front, resting on a roll with pendants. In order not to conceal the outstretched right hand and wrist, the artist set the head somewhat farther down than it ought to be.

A double string of beads hangs about the neck and breast. The profile face of the priest is badly hacked, which can be laid up against the Yucatec milpero gang, who, making a milpa of the principal square of Tikal, hacked away the faces of all the carved figures, so that their angered spirits should do the fields no harm. A shocking custom quite common among the modern half-breeds of Yucatan! To the lower part of the head-dress, now become indistinct, a small bunch of feathers is attached in front. A design resembling an arm forms the top, and a bunch of feathers falls downward at the back.

A large head is attached to the back of the priest. Though the face in profile is badly hacked, the ear-ornament with accessories can still be distinguished, also the two faces placed one over the other surmounting the priest's head, also a half-mask supported by a roll with pendants under the chin. The whole composition rests on a framework reaching low down and ending in a half-mask with a little scrolled pendant.

While the left arm hangs down at the side, the outstretched right hand holds a triply composite staff of ceremony, which rests below on a large profile head glyph, placed close to the right foot. The three parts of the staff are held together in the middle by a solid ornament and the top is finished off by another.

The Narrow Side-faces on the East and West. The eastern side-face has two vertical rows of nine glyphs each, and the western two rows of only eight glyphs each, making 34 glyphs in all. The glyphs are all very well preserved and with a favorable light (not always to be had) they came out finely on the photograph. These glyphs are not as desperately composite as certain others and therefore will probably be more easily deciphered.

The north side is plain.

Stela 4 (Plate 16). This stone was so nearly covered up by débris which had rolled down from the temple-pyramid behind it, that the only visible portion was a plain, pointed top with the beginnings of glyphic scroll-work. Though the stone appeared to be without value, I nevertheless concluded to excavate all around it down to the cement pavement of the terrace. It gradually became apparent that we had before us a stela, let upside down

into the cement pavement so deep that we had to break the layer of mortar which partially concealed the tiger-head on the south side and the initial glyph on the north. It is the only time in my archaeological experience that I have met with a similar case. Is it possible that this sculptured image had also lost credit with the faithful of Tikal, and instead of being broken in pieces was set up head downward? It is difficult indeed to surmise the reason for this singular act. At any rate, the face having been buried under débris, escaped being hacked by the milpero gang!

The height of the stone from the plain point which ought to be at the bottom, to the edge of the rounded top is 161 cm. Breadth in the middle, 86 cm. Thickness, 37 cm.

South Side (Plate 16, Fig. 2). The height of the relief from its lowest base line (if it were correctly placed) to the top edge of the rounding off is 123 cm. Holding the photograph in the proper position, we distinguish at the bottom large glyph compositions with the sign for 13 (two bars and three dots) placed on the observer's right. It should be noted that the sculptor added two more faintly indicated vertical lines on the edge which curves round to the adjoining narrow side-face of the stela. If those two lines have a numerical value, we should read 23. Above the glyphic base appears the glyphic half-length image of a personage represented in front view. The upper edge of a collar apparently made of feathers can still be distinguished. The smooth round face has a large ear-disk on either side. The tiger-head forming the head-dress is surmounted by scroll-work from which a plume of feathers falls downward on the left (from the observer).

There still remain faint indications of the left arm with the closed hand lying upon the breast. The arm holds what looks like a short quiver with feathers projecting at the top, and near the bottom it has three long points falling over the lower arm and the wristlet which is ornamented with disks.

It is difficult to determine by what the right arm is concealed. Generally speaking, the relief on the south side turns with rounded edges over upon the narrow side-faces. Can the personage here represented be a sacrificial priest, since such priests actually wore the tiger helmet? Or is it a female deity? Who can tell?

North Side (Plate 16, Fig. 1). The carving of glyphs on this side is adapted to the considerable unevenness of the stone. The photograph held in the right position and compared with my sketch,¹ will give a correct idea of the glyphs. At the top is the large initial glyph, below it are two glyphs, and then (counting the horizontal rows) four sets of three glyphs: — Thus $1 + 2 + 3 + 3 + 3 + 3 = 15$ glyphs.

Before this shattered stela stood a circular altar (No. I in my enumeration) 118 centimetres in diameter and of considerable thickness (or height). This stone was not deeply buried and it seemed to me to have on its upper

¹ This drawing of the glyphs is not reproduced. — EDITOR.

surface remnants of sculpture very much worn away. Badly weathered glyphs on the cylindrical side were more plainly recognizable.

In excavating the stela and also for the purpose of setting up my photographic apparatus, I was forced to set the altar up on one side when, to my surprise, the *under* side disclosed a relief of strong projection, but unfortunately badly disintegrated by the moisture of the earth. It seemed to represent a figure seated in European fashion, holding out a large head with both hands.

Keeping in view the architectural centre of the whole group, the third temple may be regarded as having the most advanced position. On the south side of the pyramidal substructure of this third temple, there is set up a row of five stelae, and a sixth placed centrally before them with a considerable distance between.

Of all these stelae only the first on the right (No. 5 in the general enumeration) has relief-work and a sacrificial altar belonging to it (No. II), while the last stela to the left is plain and likewise has a circular altar (No. III) before it with bas-relief.

Stela 5 (Plate 17, combination of West, South and East sides). This stela is still in an upright position. The height from the base-line of the figure to the top of the stone is 212 cm., to which should be added about 75 cm. for the plain portion, most of which is let into the ground, giving a total of about 287 cm. Breadth near the top, 112 cm. Thickness, 40 cm.

Southern Broad Face (Plate 17, Fig. 2). The sumptuously adorned personage, presumably a priest of high rank, on this stela, is represented strictly from the left side, the right foot not advanced, merely a faint outline of the right leg being discernible behind the left, as was customary in sculpture of that period. The high buskin of the visible left leg is richly ornamented. Over a loin-cloth of thin material coming down in an oblique line below the knee, the priest wears breeches of tiger-skin with tail hanging down behind, and an ornamental flap with a goggle-eyed mask hanging down in front. The very elaborate girdle might be regarded as a third loin covering. It displays St. Andrew's crosses above, between horizontal groups of lines, and on the lower edge a double fringe of feathers and snail shells. In front, the girdle has a large profile head with a criss-cross bar and pendants under the chin and a surrounding drapery of flat bands. The breast-cape consists of a wide bead collar with a deep feather fringe on the edge and a mask with a triple pendant attached in front.

The profile countenance of the priest is completely demolished, but it undoubtedly had an ornamental support below the chin, of which a little half-mask still remains resting upon the left shoulder, and also a small tiger tail falling over the bead collar and curving toward the front. A scrolled nose-ornament can also be distinguished.

The rest of the relief is all scaled off up to the top. Hence the head-dress has vanished, only the ends of the feather plumes still remain at the back.

The left arm hangs straight down and distinctly shows the richly ornamented wristlet. The hand holds the elaborate pouch, which ends in imitation of a rattlesnake's tail. (The pendant hanging parallel with the pouch, I regard as the ornamental flap.)

In his outstretched right hand the priest holds a little idol (now almost demolished) by one of its legs, which, as usual, ends in a serpent writhing forward, and now nearly scaled off. Below the little idol there is a vertical row of three well preserved glyphs, and above it there was once a double row, now wholly scaled off.

The priest has the large head of a deity attached to his back, probably fastened to his girdle. Below the chin is a bar with three visible pendants, and the forehead is surmounted by the familiar half-mask with proboscis. To the back of the double ear-ornaments is attached an oblong panel with graceful outlines, from behind which issue long, beautifully curving feathers. The lower end of the panel finishes in a large rectangular scroll. There are presumably two of these ornaments (the other being invisible) with a face between.

The captive destined to be sacrificed lies flat on his face close behind the priest. The head, trunk and arms are all gone, but the legs and feet together with the rope tied around the knees are well preserved. The legs are bent at the knee and the feet held up in the air, as there was not sufficient room to represent the captive stretched at full length. This relief has considerable projection; the depressions still show vestiges of a coating of fine stucco painted red. No other colors remain.

East and West Narrow Side-faces (Plate 17, Figs. 1, 3). Each side-face has two vertical rows of twelve glyphs each, making a total of 48 glyphs. They are all, excepting the three at the top on the west side, admirably preserved and distinctly show their very composite nature, doubtless furnishing material for prolonged study and comparison.

North Side. This side is plain.

Before the south side of the stela lay a *Circular Altar* 125 cm. in diameter and about 20 cm. in thickness, No. II in my enumeration. This altar had relief-carving on the upper surface, now quite destroyed, and handsome symbolic designs on the front (south) portion of the cylindrical surface, which is well preserved near the lower edge, but scaled off below the upper edge.

In 1895, while inspecting Stela 5, I found a large heap of coals and ashes on the ground before it, the circular altar having been flung to one side. I thought it very strange that roaming hunters should have chosen

this particular spot for their camp fire. Afterward, in the fine second gallery in the fourth story of the Palace of Five Stories, I found an abandoned paper mould of the relief on the south side of Stela 5. After carefully looking it over, I was forced to admit that it was very well done, and had probably been left because it could not be rolled up, owing to the strong projection of the relief, and there was no other way of transporting it. Finding more such suspicious traces of fire in front of stelae afterward in Seibal, I conferred with my men concerning them and learned that Señor Federico Artes with his mould-maker, Gorgonio Lopez, had previously visited Tikal in order to take paper moulds of the best reliefs. Of course, I am not prepared to say that the scaling off of Stela 5 and its Circular Altar (II) was in consequence of moulding fires, though I must confess I did not think that either of the stones had gained by the process. It seemed a great pity, however, to leave that excellent mould behind.

Circular Altar III, with Relief-work. The stela standing on the left wing of this group is quite plain, as before stated, but its Circular Altar III has relief-work on its face, and on its cylindrical sides.

The face of the stone shows a manikin in a posture expressing animation, but very much worn away, while the surrounding scroll-work is much better preserved.

The cylindrical sides, divided into oblong spaces, display a tasteful symbolic design, consisting chiefly of two oval figures crossed by a band and separated from each other by a criss-cross design. The small oblong space on the front (the south) contains an agreeably conventionalized head. The diameter of this circular altar is 1 m., its thickness (height) 48 cm.

The fourth temple coming next in order on the left wing of the series (the one on the east) has three stelae belonging to it; a plain one before the south front (on the observer's left) to which belongs Circular Altar IV with relief, another No. 6 (on the observer's right) with relief but broken in pieces, and a third (in advance of the others on the central line of the temple to which it belongs) No. 7 in my enumeration, with relief and likewise broken in pieces.

Circular Altar IV, with relief. This altar is in front of and close to the plain stela, which still maintains an upright position. The diameter of the altar is 124 cm. The low relief on the face is fairly well preserved near the edge of the circle. The relief seems to represent a figure seated on a scroll and surrounded by scroll-work. As for the half-buried cylindrical surface, this seems to have been decorated with symbolical designs and may have been better preserved than the top.

Stela 6. This once beautiful stela had relief-work on the south side and glyphs on the narrow side-faces, but it is now so completely broken

up, that it was impossible to do anything with it. One can only faintly recognize that the south side is occupied by a sumptuously clad personage with a helmet and plume of feathers, and that the carving of the glyphs on the side-faces was clear and good.

Stela 7 (Plate 18, Fig. 1, South side). This stela, which as I have said, stood in advance of the others, was also broken in pieces, but I was able to join two of the largest fragments. The breadth of the stone is 57 cm.

The relief may represent an old sorcerer or *Hmen* from the left side. The left leg, no doubt, was slightly advanced. Instead of a regular girdle this personage probably wore only a sash. A double string of beads depends from the neck to which seems attached the obliquely placed head of a small mammal whose right paw is stretched out to grasp the elaborated staff of ceremony. Long pointed feathers fall down over the breast and upper arm. The *Hmen* wears on his breast a head seen in profile with a pendent fringe of feathers below. The ear-disk can still be distinguished as well as an ornament near the nose. A large head, also in profile, was attached to the back of this personage; it is now wholly demolished, though its pendants still remain, as also the two straps running over the left upper arm, by means of which the head was held in place.

The face is that of an old man with a circle around the eye. The ear-ornament has the familiar horseshoe form, finishing with an extension covering the cheek and two pendants.

The head-dress consists of a combination of broad horizontal bands, the lowest one finishing at the back in a fantastic half human face, below which an outstretched paw appears to be grasping some object. A vertical band, running over the head from ear to ear, seems to hold the head-dress together, while a large conventionalized eye is attached in front.

The left arm hangs down at the side of the body, and has a large flat wristlet. The hand holds the familiar pouch.

The outstretched right hand holds a composite staff of ceremony with an ornament on top. The staff resembles that on *Stela 3*, only it is not quite so long, or else it is only half portrayed.

In spite of the badly demolished condition of the stone, the photograph turned out quite satisfactorily. The face, at any rate, of the aged sorcerer is not hacked away, since the stone, broken and lying on the ground, did not attract the attention of the iconoclastic milpero-gang.

The narrow *side-faces* of this small and rather thick stela were badly damaged, but each still showed traces of a single vertical row of glyphs.

The north side or back of the stela is plain.

Along the northern edge of the principal square, near the slope (former stairway?) which leads up to the first terrace described above, there is a row of thirteen stelae, seven of which have relief-work (Nos. 8, 9, 10, 11, 12,

13, 14). All these stelae, with the exception of No. 14, have circular altars placed before them on the south.

A little way in front of this row is another of five plain stelae, each with a circular altar before it on its south side. In front of the west stairway of Great Temple I stood two large plain stelae (now fallen down) each with a circular altar on the west side, and in front of the east stairway of Great Temple II stands a single plain stela with its circular altar on the east, as a matter of course.

Of the seven sculptured stelae on the north edge of the square, there is now (1904) only one, No. 10, standing in an upright position. The three stelae, Nos. 8, 9, 13, which I found still standing when I visited Tikal in 1895, had in the meantime been thrown down by chicleros, who are the perpetrators of so much mischief in the ruins, because, in their stupidity and covetousness, they hoped to find hidden treasure underneath. A certain Emiliano Vasquez of Flores seems to be the chief instigator of this kind of depredation. As it was an extremely difficult matter to set up the fallen stelae for the purpose of photographing them, I sent a protest to the government of the Department of Peten regarding this wanton mischief, at the same time calling attention to the fact, that the chicleros were given concessions for gathering gum but not for despoiling the ruins.

Stela 8 (Plate 19, West, South and East sides). The entire height or length of this stone is 193 cm., 150 cm. of which belong to the figure on the south side, measured from its base line to the very top. Greatest width, 52 cm.; thickness, 43 cm.

South Side (Plate 19, Fig. 2). Before this stela was thrown down by the chicleros, it was let into the pavement up to the ankles of the exalted personage represented on the south side. The photograph plainly shows the top layer of cement still clinging to the ankles.

This personage of high rank is represented from the left side with the right foot placed a little in advance of the other. The sandal on the left foot is still very distinct. The sole can be seen held in place by little straps drawn between the toes, also a heel protector, the strap around the ankle and above it on the outer side of the leg, the familiar half-mask with proboscis. Above the eye of this mask, instead of a forehead, a large oval is applied with the sign for two (8) before it forming a kind of glyph. Of course the corresponding ornament on the outer side of the right leg cannot be seen. As the relief is almost quite demolished above the thigh, the loin-cloth, girdle, etc. cannot be discussed.

Depending from the neck, however, two bands can still be distinguished, to the lower end of which a mask was no doubt attached. Presumably the face, now wholly hacked away, was supported by an ornament which concealed the neck. There are no vestiges of the head-dress remaining.

The left arm probably hung down at the side, while the right hand held the triple ceremonial staff, still plainly to be seen. The staff had an ornament below, in the middle and on top very much like the staff on Stela 3. Traces still remain of a large head, with pendants and ornaments surmounting the forehead, attached to the back of this personage of high sacerdotal rank.

Western Side-face (Plate 19, Fig. 1). This side has a vertical row of eight large, well preserved glyphs arranged in groups of two thus, 2 + 2 + 2 + 2.

Eastern Side-face (Plate 19, Fig. 3). This side has a vertical row of fifteen glyphs. Beginning at the top and going downward they are arranged in groups of 3 + 4 + 4 + 4. They are fairly well preserved, with the exception of two in the middle of the stone, where there is a large oblong hole, and one other below, on the observer's left, where there is a smaller hole. These holes were originally filled up with little stones and stucco, and upon this filling the missing parts of the glyphs were modelled. The filling is now all gone.

The north side is plain.

In spite of the badly mutilated condition of the *south* relief of this stela, it will still be of importance to Americanists who are attempting the decipherment of hieroglyphs. This stela, unfortunately, is among those thrown down by chicleros.

Stela 9 (Plate 20, combination of West, South, and East sides). This stela is another of those thrown down by the rapacious chicleros, who, as may be supposed, found nothing underneath. Whole height or length of stone, 211 cm. Breadth, 65 cm. Thickness, 37 cm.

South Side (Plate 20, Fig. 2). The relief measures 141 cm. from the base-line of the figure to the oval border (under an overhanging edge of considerable projection).

Of all the stelae standing in the open and not protected by débris, the relief on this one is best preserved. This is owing to the fact that in addition to the excellent, hard quality of the limestone, the south side was protected by its overhanging top from the direct violence of the rainfall.

The personage, probably of royal rank, represented from the right side, stands with the left foot slightly advanced. The sandal on the right foot is particularly distinct. The little straps which pass between the toes to hold the sole in place can be plainly distinguished, also the smooth leather heel protector and the double strap around the ankle.

The loin-cloth, probably bordered with feathers, seems to be held around the waist by a plain sash. Below it in front appears the broad ornamental flap with the edges turned over at the sides, the centre being covered up by a head in profile suspended forehead down from the plain girdle. Below the

forehead the head has attached to it a roll with three pendants. (By turning the photograph upside down this ornament becomes intelligible.)

The breast and upper arms are concealed by a breast-cape of feather-work. The necklace is fourfold and has a medallion head, seen only in profile, attached in front, which is finished below by a radiating fringe of feathers. Two straps come down from the neck under the necklace and form a pretty plaited design on the front of the plain girdle, allowing the ends, which appear and hang down at either side, to frame the head on the ornamental flap.

The ear-disk shows four flattened knobs, and from a perforation in the middle issues a little tassel hanging obliquely. The badly disfigured profile face appears to better advantage on the photograph, owing to the deep shadow.

The back part of the head is supported by the upturned claws and head of an eagle, the latter crowned by what resembles three radiating fleur-de-lis. Over the forehead an alligator's head with open jaws stretches forward, and above this appears the "copilli" of the Aztec and Toltec kings, with an ornament on the front. The "copilli" is surmounted by a head in profile (the right ear-disk can be plainly distinguished) and from the top of the head proceeds the plume of feathers falling down behind.

Below the eagle's claws, which support the head, the feather mantle falls from the shoulders, displaying at intervals three eagle-heads (which perhaps can be more readily distinguished if the photograph is held upside down). From each eagle-head proceeds a double scroll, which lies along the edge of the stela. The tail of the serpent at the bottom of the mantle may be regarded as the end of the sash knotted behind.

The outstretched right hand, with two bands around the wrist, holds the staff of ceremony which is surmounted by the *ketsal* (bird). The left hand also rests against the staff.

Can this splendidly arrayed personage with the eagle mantle, the *copilli* crown and *ketsal* be one of the kings of Tikal? Was his name *Ay* (Alligator)?

The East and West Narrow Side-faces (Plate 20, Figs. 1, 2) each have a vertical row of seven large, fairly well preserved glyphs, which will doubtless be of value for purposes of comparison.

The north side is plain.

Stela 10 (Plate 21, West, South and East sides).

After the mischief perpetrated by the gum-gatherers mentioned above, this is the only sculptured stela left standing in an upright position on the principal square.

Measured on the south side the height from the base-line of the figure to the rounded top is 206 cm. to which should be added at least 75 cm. for the portion let into the pavement. Greatest breadth, 95 cm. Thickness, 42 cm.

South Side. (Plate 21, Fig. 2). The work on this stela is in high relief

and perhaps for that very reason it is badly worn away by the action of the elements, in addition to which the face of the captive, as well as that of the principal personage, has been hacked away.

The personage of high rank is represented in front view, with feet apart and the face turned to the right. The footgear is worn away past recognition. The loin-cloth of feathers with a border of shells is held up by a close fitting girdle, which gives the figure the effect of a small waist and broad hips. Below the girdle appears a broad ornamental flap with a head attached at the top, the large pendants of which can still plainly be seen. The breast-cape is formed of scales and the necklace has a small head now grown indistinct. Nothing is left of the face but the two feathers projecting from the nose. The helmet still shows a face on the front, a small plume of feathers standing upright on top of all and a large plume hanging down behind. The right hand holds up an object which can no longer be determined. The left hand hangs down at the side.

Behind the personage of rank lies the captive with arms crossed over his breast and feet in air. The fact that his head looks like that of an animal is merely the accidental result of demolition.

Accessory carvings on the background can no longer be distinguished. The photograph shows very dark shadows, which have their advantages as well as their disadvantages. Even a different light would bring out very little more. In spite of the advanced stage of demolition, traces of stucco and red color still remain.

Eastern Side-face (Plate 21, Fig. 3). The glyphs on the two side-faces are in a far more satisfactory state of preservation, being also carved in quite high relief. This side has a vertical row of thirteen large glyphs, beginning at the top with the familiar initial glyph.

Western Side-face (Plate 21, Fig. 1). This side has a vertical row of thirteen double glyphs, that is, the glyphs seem to be closely combined two by two. The topmost glyph is entirely destroyed owing to the curve of the stela at that point, and also to the scaling off of the stone at the back. Only the lower half of the next glyph still remains.

North Side. This side shows the remains of four vertical rows of glyphs. All the upper glyphs have scaled off or washed off. I cleared away the concealing earth and débris from the lowest glyphs to see whether it would be worth while to photograph the entire north side. However, it proved to be full of large holes which had once been filled with stucco, now all gone, thus leaving incomplete the otherwise well preserved glyphs. I therefore omitted to photograph the north side. It was even difficult to ascertain the number of glyphs. I think each row contained about twelve.

Stela 11 (Plate 22, South side). This stela stood quite near Stela 10, a little to the east, and its history is as follows. Some vandals, unknown

to me, had taken advantage of the fact that the stone admitted of cleavage near its southern face, and had split off the entire portion holding the relief. This slab I found in 1895 with the relief side exposed to the rains, lying in an inclined position near the main body of the stela, which was still in an upright position. It is difficult to see what could have been the object of such an act. Could it have been for the purpose of making a mould? In 1904, therefore, I found myself under the necessity of placing the slab with the relief on one of its sides. My Tenosiqueros were quite clever at this kind of work. With the aid of the steel winch I had brought with me, this feat was accomplished,—a very difficult one, for the comparatively thin slab, which was rounded at the edges, had to be supported behind and before to hold it in position.

The height of the stela from the base line of the figure to the curved top is 233 cm., to which should be added about 75 cm. for the part let into the ground. Breadth, 126 cm. Thickness, adding the split-off piece to the whole, fully 60 cm.

The *two side-faces* and the *north side* are plain.

South Side (Plate 22). In spite of advanced disintegration the photograph taken after long exposure shows a most sumptuously arrayed personage of high rank represented in front view with the face turned to the right and the feet far apart.

The familiar tuft on the instep adorns the foot-gear. The loin-cloth, evidently running to a point in front, is held to the waist by a girdle adorned with St. Andrew's crosses and probably with three concealed medalion heads with pendants. The broad ornamental flap hangs down in front with angular scrolls on either side of the bottom and a bunch of three long curved feathers depending from the middle.

The breast-cape is made of beads and has attached to it a mask with a fringe of radiating feathers. Above the weather-worn face rises the head-dress, a confused and indistinct mass of masks and scrolls. On top of all, a serpent rears its head thrust toward the front, and a large plume of feathers falls behind.

The outstretched right hand holds a small object, possibly the heart of a sacrificed victim. The left arm holds obliquely the staff of ceremony, which is made of trellis-work held together at five different points.

The sculptor presented to view the large head of a deity, usually worn behind, by allowing it to appear on the left side. It is a grotesque face with goggle eyes and an elaborate setting. The usual pendants can be distinguished and also the elaborately carved support with scrolls supposed to be turned to the right and to the left. From the top of the dorsal head there seems to rise (above the staff of ceremony) some kind of head-dress with a bunch of feathers.

On the ground behind this exalted personage, a captive lies on his face

in a position similar to those of Stelae 5 and 10. Though the head is badly worn away it still shows traces of some kind of head-dress, indicating a captive of high rank.

There are two incised miniature glyphs on the smooth background near the head. Of these I made a tracing, since I could not expect the camera to bring them out.¹

Above the head of the captive rise four graduated rows of small glyphs, which have become indistinct. Above the right hand of the principal figure are two more vertical rows of glyphs also much worn away, surmounted by a fantastic figure facing the elaboration of the helmet.

Beginning at the base-line of the figure, the rounded edge of the relief is ornamented with vertical and transverse lines, and, forming a round arch at the top, frames in the whole relief.

In front of Stela 11, on the general level of the cement pavement, stands a circular altar 170 cm. in diameter. It is sharply and smoothly dressed and is the largest in Tikal, which proves that its stela must have been of a certain importance in sacrificial ceremonies. Several of my archaeological friends had expressed the wish to have the question settled beyond a doubt as to whether persons of rank had been buried in the ground in front of the stelae, or perhaps directly under the circular stones. In that case small objects of daily use would have been buried with them or, in case of cremation, stone receptacles containing the ashes and ornaments of fire-proof stone and metal would have come to light. After clearing away the centuries old accumulation of forest mould, we broke up the cement pavement close to this circular altar and set about making a regular excavation. We dug away the earth under the altar which remained undisturbed and served as a roof. At a depth of about $\frac{3}{4}$ m. we struck the original natural *sáhcab* earth, which forms the subsoil of the greater part of the peninsula of Yucatan, and extends as far as Tikal. *Sác-cab* means "white earth." In this case *sác* changes to *sáh*, actually to *sákh*, *sáx*. The phonetic spelling of Maya words, by the way, as introduced by the Franciscans, is in some cases inadequate. This *sáhcab* is white, hard, calcareous sand and plays a very important part through all Yucatan as a top layer in road building, and as an ingredient of mortar for all kinds of building. In Tikal itself, unless good hard limestone was required for facing, the easily worked *sáhcab* stone of this region was almost exclusively used for building material. The excavation was continued quite without result to the depth of a metre in the layer of *sáhcab*, and extended almost to the size of the circular altar, which formed a solid covering to the resulting cavity. We even continued to dig as far as and beneath the next circular altar, but all in vain! The *sáhcab* layer, although it would have made a tidy white grave, had never been touched by human hand!

¹ This drawing not received. — EDITOR.

From an archaeological point of view the result of our rather extensive excavation was entirely negative, but in a geological sense it was not without interest. It is probable that persons of rank were only in rare instances buried in the heart of these temple-pyramids, but most likely as a general thing near their offsets or lower terraces, and mortuary stelae with their circular altars were set up at certain distances from the graves in honor of the dead and also of favorite deities.

Stela 12 (Plates 23, 24).

Starting at Stela 11, and walking in an easterly direction past five plain stelae and their circular altars, we came to an almost wholly buried stela. Only the top with the much worn away bunch of feathers of the relief appeared above ground, and gave evidence of the whole being much broken up and generally unpromising. Nevertheless, I decided to excavate it, in order to clear up all doubts. The result of the rather difficult piece of work was a stela not very high but comparatively broad and quite thick, with carving in half (not low) relief on the south side, and interesting glyphs in low relief on the other three sides. The entire height or length of the stone is 150 cm. plus the broken off lower portion measuring about $\frac{1}{2}$ m. Breadth (if restored), 91 cm. Thickness, 50 cm.

South Side (Plate 24, Fig. 1). The carving in half relief is badly weather-worn, the stone shows small imperfections and has also scaled off on the eastern side-face (on the observer's right), probably the result of milpa fires.

A personage of rank, in front view and turning his face to the left, is represented as far as the knees only. The waist is tightly girded in. The broad hip-covering consists of tiers of feathers and has an animal's head close to the girdle, probably that of a lion (*coh*) with feather pendants. The breast-cape, which also covers the shoulders, consists of rows of short feathers. From the necklace depends a peculiar mask with short pendants. Two long pendants hang down probably from the shoulders and border the lion head on either side. The half destroyed face shows a crescent-shaped ear-ornament on one side and the usual two feathers projecting from the nose. The head-dress, destroyed in front, still shows a large plume of feathers on top, and another falling down at the back. The right arm is scaled off below and the left wholly demolished.

Western Side-face (Plate 23, Fig. 1). This side has a vertical row of six large, finely executed glyphs in a fair state of preservation, which I photographed in a most favorable light.

Eastern Side-face (Plate 24, Fig. 2). Of this side, which was wholly split off, I was able to photograph a fragment with four glyphs, two being lost.

North Side (Plate 23, Fig. 2). This side formerly had three vertical

rows of glyphs, of six each. The stone is cleft lengthwise through the middle row. The fragments, as I have placed them, show fourteen of the original eighteen glyphs with more or less distinctness.

In spite of the ruinous condition of this stone, which is owing far more to fire than to the action of the elements, there are still a number of interesting fragments remaining. Indeed, some of the glyphs are of an excellence of workmanship very rarely found. It is my endeavor to photograph fragments of this kind, inevitably doomed to destruction, before they are entirely demolished. Let me remark, by the way, that the preparations for photographing such broken and buried fragments generally consume an entire week.

Stela 13 (Plate 25).

This stela, which was still in an upright position in 1895, is now also among those thrown down by the gum-gatherers. Accordingly I found the stone lying on the ground in 1904 and was forced to put it in position to be photographed. The total height (or length) of the stone is 190 cm. Height of the figure on the south side from its base-line to the very top, 150 cm. Breadth, 58 cm. Thickness, 37 cm.

South Side (Plate 25, Fig. 2). The personage carved on this side is represented from the right side with the left foot a little advanced. The sandal with toe straps, the heel protector, the fastening at the ankle, and also the ornament on the outside of the leg, are fairly well preserved on the right leg. This figure, which is presumably that of a priest, is clad in a kind of tunic, with lateral slits through which the arms are passed. A necklace with a weathered medallion head can be distinguished attached in front. From the shoulders depends a string of large beads, twisted in the middle and ending in a criss-cross design below, very much like that above the pendants of the *Tecutli* with the eagle mantle on Stela 9.

The round ear-ornament of the right ear, with a band proceeding obliquely from the central perforation is still preserved, while the face has been hacked away by the Yucatec milpero-gang. The head-dress still shows a half-mask in front but the bands and scrolls above it have become indistinct.

In his outstretched left hand the priest holds a staff of ceremony or a lance and in the down-hanging right hand (the wristlet being half-concealed) he holds a plain pouch. To his back is attached the head of a deity seen in profile, with the face hacked away, but the roll with large plain pendants under the chin is still in fair condition.

East and West Side-faces (Plate 25, Figs. 1, 3). The west side-face shows vertical rows of glyphs arranged in groups of $2 + 2 + 3 = 7$. The east side-face has $2 + 2 + 4 = 8$ glyphs, some of which should no doubt be regarded as double glyphs. These glyphs are in very low relief, but

notwithstanding this fact, they are sufficiently well preserved to come out well in the photograph.

The north side is plain.

Stela 14. At the east end of this row of glyphs, perhaps a little in front of the line and still fast in the ground, was found the bottom portion of a glyph-stela with four vertical rows of glyphs on the south side. Notwithstanding careful search the missing main portion could not be found. Whether it is deeply buried under débris, or was wholly calcined during a milpa fire, or whether it has been taken away, could not be told.

Stela 15. By proceeding on a causeway built along the west side of the large (but low) terrace belonging to the group of temples on the north side of the principal Square, the Palace of two galleries is reached. This consists of a long, finely vaulted apartment in front with another chamber in the rear.

The esplanade on the south side of this Palace is a broad terrace, upon which half a dozen stelae with their circular altars are lying about, mostly broken in pieces or badly cracked. It seems as if the milperos had extended their milpa even over this terrace.

Only one of this confused mass of stelae showed traces of relief-carving, but its fragments were scattered beyond the possibility of collection. All I could do was to give this stela the number 15, in order that my enumeration should be complete.

On the space between the great, two-storied Sacerdotal Palace, facing *west*, now wholly ruined, and Great Temple IV facing *east*, that is before reaching the great *lower* terrace of the latter temple, there are two small temples, each with a pyramidal substructure and the façade of each facing Great Temple IV. These two little temples do not stand side by side but one behind the other. Upon the west esplanade (approached from the east) of the first of these temples, are five large, thick stelae, standing in a row and a sixth somewhat smaller in front of the line. Each stela has a circular altar, but all are without carving. Proceeding a few steps to the north from the space between the two little temples, upon which stand the six plain stelae, a small court is reached enclosed on all four sides by the low ruins of a small structure with an entrance on the south.

In the centre of this court I found, still in an upright position, the stela with a splendid relief, which is No. 16 in my enumeration. But no vestige of a circular altar belonging to it could be found. In vain we cleared away all the vegetation, but where the altar should have been rose a fan-palm over a century old shading the stela with its beautiful crown of foliage.

During the very last days of my stay at Tikal, while inserting the smaller structures in my general plan of the city, I discovered this Stela 16. Time

was pressing! I had already sent special messengers to San José for carriers. Thinking over this last discovery in the stillness of the night, I concluded to make an extensive excavation with my Tenesiqueros without a moment's loss of time, in order to solve the enigma which enshrouded this solitary priest-king.

Consequently, on the following day, the beautiful fan-palm was felled, which was no very easy task, since its fibrous wood is exceedingly hard and tough. This done, all the roots and earth were cleared away in a circumference of more than three metres. After digging down to the depth of one metre our hard-wood crowbars struck a large stone. Now proceeding with great care and brushing away the black earth with clipped bunches of palm leaves, there lay before us the greatest discovery ever made in Tikal, the great Sacrificial Stone (No. V in my enumeration) with the two principal Maya deities carved on the upper face!

Stela 16 (Plate 26, South side). Let it be understood that the north side and the side-faces are plain.

South Side. Height of the relief from the base-line of the priest-king to the upper edge of the border is $241\frac{1}{2}$ cm., of which $16\frac{1}{2}$ belong to the border. A general estimate of the total height or length of the stone would include about 80 cm. buried in the earth, amounting in all to 321 cm. Breadth of stone, 128 cm.; but the breadth of the niche in which the figure stands (exclusive of the border on the right and left) is only 95 cm., while the height of the niche is 225 cm. Thickness of stone, 32 cm.

The priest-sovereign or Ahaucan is represented in front view with his face turned to the right and his feet apart.

The buskins are overloaded with ornamentation showing among other things a *kin* sign (X) on the heel protector, and at the ankle a conventionalized face with great goggle eyes (only one being visible) and a large proboscis. But in the form of a puzzle, such as the ancient sculptors were fond of employing, there can be discovered the miniature half-mask of a similar face beside the great eye and above the nose. Above these faces rises an elaborate mass of ornamentation.

Below the knee the garters can be seen, consisting of a double row of beads with a medallion head in front in a frame of beads and having short pendants below.

The loin-cloth edged with fringe and beads is probably of tiger-skin, but instead of the spots of the panther ("tiger" as we say in this country) the garment is covered with delicately incised crossbones. On the right and left side the loin-cloth has a large oval with a double border, half of each oval only being visible.

The girdle, the upper half of which is concealed, has a fine medallion face in front. From under each ear-ornament depends a broad band giving

an effect of elongation, and from a knotted band under the chin hangs a long oval pendant. There are medallion heads with pendants at each hip also, the heads, of course, seen only in profile. The spaces between the heads on the girdle are filled in with circular designs.

Underneath the central mask is a band of three horizontal strips, from which falls the wide ornamental flap with an ornament of angular scroll-work in the centre, from the bottom of which depends a long tassel. This flap may also be regarded as made of panther skin, with minute incised glyphs in place of spots.

Possibly the priest wears an upper garment of thin material, but that cannot be determined. The breast-cape of beads, however, with a fringed edge can plainly be seen. This beaded breast-cape is for the most part concealed by a wide breastplate with a narrow one below it.

The wide upper breastplate shows a medallion in the middle, surrounded by two rows of bead and having the central portion filled in by what appears to be an incised glyph.

The medallion is flanked on either side by an oblong oval figure with a raised border containing four beads. From each of these radiate three similar figures, also set with beads, and each ray is tipped by a bead at its rounded end.

The lower narrow breastplate finishes at each end in three flat, radiating strips.

A very long feather or rod is drawn horizontally through the nose, close to which another short feather seems to curve upward.

The ear-ornament is oval with a knob in the centre and having two small rings of beads on the lower edge as pendants, and a short band proceeding obliquely from it on the side and extending across the cheek toward the chin.

The lower part of the towering helmet consists of the grotesquely conventionalized face of some deity with goggle eyes and an aquiline nose (seen, of course, in profile). Small knobs can be distinguished on the nose and on the forehead and small indentations even on the eyeball.

On the part of the helmet crowning the forehead of the grotesque face there is a large ring with a short band issuing obliquely from the centre, giving the impression that the ear-ornament had been removed to this position, an artistic license permitted to Maya sculptors. This part surmounting the forehead shows a small grotesque face in front, a repetition, no doubt, of the large one below, and confronting it is a small *ketsal*.

Above the transposed ear-disk lies a double scroll upon which rests a now mutilated face in an oval frame, from the top of which proceeds a great plume of feathers curving forward and backward, while behind the oval and along the whole back of the helmet, is a handsome crest of feathers with a border of beads and short feathers. Beyond this crest projects the end of an ornamental bar, probably the continuation of the top of the helmet proper. From the end of this bar proceeds another drooping bunch of feathers.

The high priest holds horizontally with both hands just above his girdle, a tastefully composite staff of ceremony. In the middle of it, lying horizontally, is the familiar grotesque face of a deity with goggle eyes and proboscis, in this instance curving upward. By turning the picture so that the left edge lies horizontally, it is possible to distinguish the grotesque face of a deity in miniature directly adjacent to the great eye, another case of employing the puzzle in sculpture. The staff of ceremony is composed of three strips ornamented with beads. The two outer strips together form a diamond on either side of the horizontal head, and curve outward at either end with a large bead in the curve. All three strips are tipped with beads at the end. From the right wrist depends the familiar pouch with a Tlaloc face on the front. A mantle of radiating feathers appears at the back of the high priest.

Upon the plain background to the right and left of the lower part of the legs, and above the feather mantle on the right shoulder, are three bordered panels containing each a vertical row of four glyphs, making twelve glyphs in all. They are carefully executed in detail and fairly well preserved.

Considering the fact that this magnificent low relief has been standing here forsaken for three and a half centuries, it is certainly very well preserved, which is partly due, no doubt, to the protection vouchsafed it by the fan-palm from direct contact with the heavy rains.

Let me say in addition, that the relief on Stela 16 has many points of agreement with that on No. 11. Personages of the same rank are evidently portrayed on both stelæ. Even the circular altar of Stela 11, though plain, has very nearly the same proportions as the very superior one belonging to No. 16.

Circular Altar V belonging to Stela 16 (Plate 28). Upper surface.

This circular altar, which we found in the bowels of the earth after an excavation which was attended with great difficulties, could not possibly be photographed as it lay. The excavation therefore had to be widened all around the stone, so that my Tenosiqueros could raise it on end with the steel winch. When this difficult feat had been successfully accomplished the face of the altar turned toward the east. It was carefully cleaned, and near noon the sunlight fell advantageously upon it. I had waited for this moment to take the negative.

The photographic apparatus was in position, everything was in readiness and the stone given a final wetting, when a light drift of clouds obscured the sun! Then the god of winds suddenly wafted the clouds away and the sun burst forth. A critical glance at the stone convinced me that the right moment had come, and the negative was taken. It was perfectly successful.

A few minutes earlier or later and a very different and quite useless picture would have been the result, and if in spite of all precaution I had not wet the relief, the negative would not have come out clear. Certain rules

must perforce be followed when taking photographs of this nature, or the result will inevitably be a failure.

The diameter of the stone is 168 cm. Diameter of the central circular relief, 113 cm. Breadth of the encircling band of glyphs, 12 cm. Height (or thickness) of the stone, 36 cm. The cylindrical surface is plain.

The lower portion of the central field of the stone should be regarded as a section of a sacrificial altar (either round or square), and behind it stand the two principal Maya deities, who can therefore be seen only from the knees upward.

This section of an altar shows a horizontal row of four delicately carved, chronological glyphs, preceded and followed by an incised *cauāc* sign (16th day of the Maya month). It is a sickle-shaped figure with drops beneath it, the initial *cauāc* having nine drops, and the end one only seven. (These drops, by the way, are regarded by some Americanists as "honey drops," in which case the word should be correctly pronounced *cáb-uāc*. Many of these old names were not correctly reproduced by the Spanish phonetic spelling and generally require some revision.)

The figure on the observer's right is represented in front view, but the face is turned to the right. The loin-cloth with a border is half concealed by the flap which hangs down from under the girdle. The breast-cape with its long fringe of strips seems to be made of prepared skin rather than of feathers. From the neck hangs a simple breast-plate by two little straps. The wristlets also seem to be of leather. The eye is partially framed by a scroll. The oval ear-ornament has crenulated edges and a long band hanging down from the centre.

Quite singular, with a purpose not clear to me, is an intricate knot attached to the mouth and nose, with three long streamers, presumably of tiger-skin, depending from it.

The large hat, tilted back a little (whether looked at from above or below), should be regarded as of circular form, but represented in profile, it naturally presents the appearance of a flat cone. The surface of the cone is apparently divided into four spaces by four bands, each space being occupied by crossbones. Of course only two spaces with crossbones are apparent, the other two being invisible.

The top of this flat cone-shaped hat is wound about by bands forming a cylinder out of which proceeds a bunch of leather strips, part of which bend toward the front and others fall behind. The strips are probably of tiger-skin, though some may call them feathers. However, little circles can be distinguished, delicately incised upon the strips.

In his right hand, placed against his breast, the god holds his staff, and in his left hand, hanging down at his side, he holds the pointed sacrificial knife of flint with strips of leather falling from the handle.

On the observer's left stands the companion-god, also represented in front

view, but with his face turned to the left. His leather garment being similar to the one just described needs no further discussion; the breast-plate hanging from his neck is also like that of the other god. The ear-ornament is the same, but is tipped above by the shell (or tiger's ear?) which occurs so frequently. From this proceeds the frame partially encircling the eye.

The same knot with long pendant streamers is repeated here in front of the face of this personage. His globular head-dress differs entirely from that of his companion. Round beads are set on the globular surface, and from the turbanlike top there also issues a long bunch of strips. This globular helmet also has a puzzle-face attached to the front or top (?), with a drooping bunch of fine strips and another erect one of broad strips.

This second god holds his staff obliquely with the right hand, and the sacrificial knife is in the outstretched left hand.

Upon the horizontal surface of the altar, *i. e.*, between the two deities or sacrificial priests (?), upon a little structure of bones or pieces of wood is placed a human skull, *una calavera*, which is represented in profile and is quite correct from an anthropological point of view.

On the space between the two head-dresses two carefully detailed glyphs are applied to the background, one above the other.

A band of 31 glyphs 12 cm. wide (or, including the inner and outer border, 27½ cm.) runs around the edge of the face of the altar. Most of these very carefully detailed glyphs seem to be of chronological value (?). As there is no mark of separation, it is difficult to know with which one to begin in deciphering them, whether to go round from right to left or *vice versa*.

The total number of glyphs on this stone, exclusive of the two incised *cauāc* signs, is thirty-seven. They are carefully executed in detail and well preserved. It will be less difficult than deciphering the glyphs to decide what deities are represented by these two figures brought to the light of day after reposing in the bosom of the earth for three and a half centuries.

I am inclined to think that the god or demigod on the right, with the flat cone-shaped hat upon his head, is the genuine Toltec-Aztec Ketsalkoatl, also worshipped by the Maya peoples. At the same time I am forced to admit that even in ancient times fundamentally divergent personalities were mistakenly called Ketsalkoatl or were merged under that name.

If the original Ketsalkoatl was a Toltec king, lawgiver and founder of a religion, it is not possible that at the same time he could be the elephant-nosed god of the winds (Ehecatl). This seems true, especially since the discovery in Piedras Negras of those reliefs representing gods or demigods, generally seated Turkish fashion in a niche, wearing a turban (like those on Stelæ 1, 3, 6, 11, 14) and recalling the East Asiatic images of Tirtankara and Buddha. It is difficult to understand how one and the same personality can be represented in such divergent forms.

At all events our supposed Ketsalkoatl of Tikal is an interesting fig-

ure, and invites comparison with other similar representations in Mexican pictography.

Regarding the figure on the left with the globular helmet, it might be meant for Tescatlipoca or even Totecutli. It must, at all events, be conceded that this figure displays none of the characteristics of a Tlaloc nor of a Mictlantecutli.

This circular stone — which will soon be as famous as the Calendar Stone of Mexico — was undoubtedly of great importance to a select circle of the initiated. Its seclusion in a little court, with a single entrance on the south, and its position in front of Stela 16 prove that a large number of spectators could not possibly have witnessed the ceremonies performed near it, and is indicative of its special sacredness. When even Tikal, remote from the path of conquest, was finally drawn into the calamitous downfall of the whole country, owing to the pestilential results of contact with Europeans, it can easily be understood that the sacerdotal orders were especially afflicted by the thought of abandoning the most sacred of their altars with the national deities of the Mayas carved upon it, and that therefore they had it covered deeply with earth to save it from desecration and destruction at the hands of conquering marauders. The layer of earth which had protected this carving, so fresh and new in appearance, from rains and forest fires for three and a half centuries could not possibly have been formed by winds, decaying vegetation and cosmic dust (which undoubtedly plays a great part in the burying of ancient cities). The discovery of this choice specimen of Maya art was the simplest thing in the world, just as I have told it. But if one stops to consider that the metropolis of Tikal covers a territory more than $4\frac{1}{2}$ km. square and is overgrown with a tall tropical forest, it certainly seems like a miraculous piece of good fortune to have found a stone 168 cm. in diameter lying hidden in the earth under the roots of a giant palm-tree.

Stela 11 (Plate 27). Back of Great Temple I, *i. e.*, to the east of it, rises an eminence crowned by the ruins of a small structure, which must have been accessible on the south and on the north. At the foot of the northern slope of this eminence we found a mutilated stela, not very high and of a thickness almost equalling its breadth. The relief on the north side was almost worn away by the action of the elements, each of the other three sides had once had four vertical rows of nine glyphs each, making a total of 108 glyphs. The fragment found by us was 132 cm. in height or length, to which should be added at least 60 cm. more for the piece broken off at the bottom, which was let into the ground. Breadth, 65 cm. Thickness (inclusive of convexity), 60 cm.

This stela has certain points in common with Stela 12. We were unable to find a circular altar belonging to it.

North Side. The relief on this side is very badly disintegrated in spite

of its strong projection. It represents a personage of rank as far as the knees, wearing a helmet profusely adorned with feathers.

South Side (Plate 27). This side was in a fair state of preservation excepting a few scalings off on the edge at the observer's left, and was therefore photographed. It displays four vertical rows of glyphs of nine each, — 36 glyphs in all, — of which only the lowest on the left has been demolished.

West Side. This side once had the same arrangement of 4×9 glyphs, but they are now all practically destroyed.

East Side. The same arrangement of 4×9 glyphs is apparent here. All the glyphs, excepting about ten, have been worn away by the rains. I made a little sketch of the ten remaining glyphs, which mostly occur on the top edge where it slants toward the south side. The drawing plainly shows the familiar initial glyph at the top, on the left.¹

Circular Altar VI with low relief.

Near the group of four mortuary pyramids in the northeast part of the town, taking direction from Great Temple I, I found a rectangular enclosure with an entrance on the south, and a circular altar in the centre of the little court thus formed — an arrangement very like the one with Stela 16 and Altar V.

The outside measure of this enclosure is about 13 m. in length and 8 m. in breadth. The wall is built of smooth, hewn stone and displays no ornamentation.

A badly worn relief occupies the face of the circular altar; another, somewhat better preserved, is on the cylindrical surfaces, which are mostly covered with earth.

No trace of a stela was to be found near this solitary stone altar.

About the middle of November, 1904, I felt the time had come when I could regard my difficult and laborious exploration of the great city of Tikal as ended. The carriers from San José had arrived. The hour had struck for parting, never to return! Leaving all superfluous baggage behind, we bade farewell forever to our dwelling in the splendid palace.

Since the road to El Remate offered nothing new, we, this time, followed Indian trails running east-southeast from the aguada in the direction of Lake Yāxhá.

¹ Drawing not received. — EDITOR.

MEMOIRS
OF THE
PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND
ETHNOLOGY, HARVARD UNIVERSITY

VOL. V—No. 2

A PRELIMINARY STUDY
OF THE
PREHISTORIC RUINS OF TIKAL
GUATEMALA

A REPORT OF THE PEABODY MUSEUM EXPEDITION
1909-1910

BY
ALFRED M. TOZZER

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A PRELIMINARY STUDY
OF THE
PREHISTORIC RUINS OF TIKAL GUATEMALA

RUINS OF TIKAL.

THE area occupied by the remains of the Maya civilization may be roughly divided into various provinces distinguished from each other by chronology, assemblage, construction, the manner and method of decoration, and other considerations.

Tikal, the centre of an Archæological Province. Tikal is in the centre of an area including the whole northeastern part of the Department of Peten, Guatemala,¹ north of the Usumacinta River and its tributaries and the Lake of Peten. This region also includes the remains in the southeastern part of Yucatan,² together with those on the northern and western frontiers of British Honduras. Tikal is the first city of importance in this area. To the east are Nakum, first made known to the scientific world by Count Maurice de Périgny in 1908, and Naranjo, explored by Teobert Maler for the Peabody Museum.³ Both are sites of importance, the first by reason of its many pyramid temples and complicated arrangement of courts, and the second because of the many sculptured stelæ. In addition to these ancient sites, the Peabody Museum Expedition of 1909-1910 reports the new sites to the north of Naranjo and Nakum of La Honradez, Porvenir, Azucar, Seibal,⁴ and Holmul⁵ in Guatemala, and those of T'sot'skitam in British Honduras.

These several ancient cities are all characterized by the presence of one large court or plaza, around which in most cases the greater number of the stelæ and altars are placed. The plan in each instance shows a system of oriented courts all connected with one another and with few detached buildings. The country occupied by these ruins is for the most part a plain,

¹ It is with much pleasure that I acknowledge here the many kind attentions paid the expedition by Señor Don Clodoveo Berges, the *Jefe Político* of Peten, and Señor Don Manuel Otero of La Libertad.

² Périgny, 1908.

³ Maler, 1908.

⁴ This site should perhaps be called Seibal 2d, as Maler (Peabody Museum Memoirs, Vol. IV. No. 1) notes a Seibal on the upper Usumacinta or River de la Pasion.

⁵ Maler (1908) has upon his map (p. 56) the names of Nakcum, Holmul, and Azucar. He did not visit any of these sites, however, and he noted their location from the reports of *chicleros*. Nakum (his Nakcum) is placed too far north, and Azucar is incorrectly located in British Honduras. He himself questioned the position of the latter.

so that there is no great topographical difficulty in an arrangement of buildings around a system of connected courts. This well-knit-together plan, showing in every case careful orientation, is in marked contrast to the more or less haphazard arrangement of buildings in the ruins on the Usumacinta River to the south and in those of Yucatan to the north.

The type of high pyramid temple with a massive roof-comb is seldom found outside this area. Palenque and many other sites have roof-combs, but they are usually more in the nature of perforated walls which serve as supports for decoration in stucco or stone. The sculptured stone lintels of the region to the south disappear at Tikal. Carved wooden lintels seem, in some cases, to take their place. The stela with carving on one or more sides and the accompanying altar still persist in the area under consideration.

It is however in assemblage and in the orientation of the various buildings that the ruins of the Tikal territory stand out most prominently from those in the regions to the north and south.

Situation. The ruins of Tikal are in latitude $17^{\circ} 11' 25''$, of longitude $89^{\circ} 48' 30''$. The land is in general a plain. There are two shallow ravines running east and west. The main part of the ruins lies between these two depressions and consists of two artificially terraced hills, one on the southern edge of the northern ravine and the other on the northern rim of the southern depression. Between the two is a level tract occupied by the main plaza of the city. (See map and cross-section, Plates 29 and 30.)

History of the Site. Owing to the fact of the comparative isolation of Tikal, it has not had so large a number of visitors as many of the other sites in Central America. According to Bancroft (1882, p. 135) Governor Ambrosio Tut and Colonel Modesto Mendez visited Tikal in 1848. It had previously been reported however by natives. Mendez was a commissioner of the Guatemalan government. His report was never published, but the manuscript fell into the hands of Hesse, the Prussian envoy to the Central American governments. Carl Ritters (1853) published a German translation of this with plates, under the title "*Ueber neue Entdeckungen und Beobachtungen in Guatemala und Yucatan.*" This translation without plates and with some slight omissions was also published by Sivers (1861). The same report was the source of the various descriptions of Tikal published in several other works (Müller, 1867, Buschmann, 1853, and Wappaus, 1863). Mendez revisited the site in 1852, but he does not seem to have left any account of this later visit.

Dr. Gustave Bernoulli was the next explorer to reach Tikal. This was in 1877, when he removed several beams of the carved lintels from Temple IV. Bernoulli died on his way back to Europe, but the remains of the lintels are now carefully preserved under glass in the Museum at Basel. The Peabody Museum has casts of the lintels.

In 1881 and 1882 Mr. Alfred Maudslay visited the ruins, going in from

Coban, Flores, and Remate. The results of his investigations are published in a contribution to the Royal Geographical Society (1883) as well as in his monumental work on the ruins of Central America (1889-1902). Charnay (1887) draws on Maudslay for his description of Tikal.

In 1895 and again in 1904, Mr. Teobert Maler explored the ruins. He reached them from the west, the Usumacinta River and Flores, and north from Remate. He spent more time at the ruins than any of the other explorers, and his work with the admirable photographs is published in the first number of this volume.

The Peabody Museum expedition of 1910 arrived at the ruins from the east, Belize, British Honduras, and then by boat to El Cayo, at the head of navigation of the Belize River, by land from El Cayo to Benque Viejo and the Lake of Yaxha, then northwest, passing several chiclé camps to the ruins. This route seems by all means to be the easiest and quickest way of reaching Tikal and is recommended to all future explorers.

Size. So far as now known, Tikal is the largest of any site in the Maya area.¹ The area occupied by the ruins is roughly one square mile. Tikal has not yielded to the present time so much sculpture as several of the other Maya cities, but exhaustive excavation will undoubtedly add greatly to our knowledge of the stone carving of the site.

Assemblage. The unit in the grouping of the buildings seems to be the quadrilateral court around each side of which there are one or more buildings. Isolated structures having no relation to a court are comparatively rare. These courts vary greatly in size, from the main plaza between Temple I and Temple II, over three hundred feet from east to west, to small enclosures surrounded by low mounds.

Sapper (1895) seems to be mistaken in his statement that the buildings were designed with the point of view of defence. The open corners of most of the courts would seem to be a decisive proof that there was no idea of defence intended.

There are three great acropoleis, great natural hills levelled off and terraced, — the northern between the north ravine and the main plaza, the central between the main plaza and the south ravine, and the southern to the south of the southern ravine (see Plate 30). If stelae and temples are the criteria of importance, the acropoleis are not, as might be expected, the main features of the city. The plaza between the north and middle heights seems to have been the centre of the city. The middle acropolis, the largest of the three, was clearly not important as a place of religious worship, since the buildings upon it are almost exclusively for residence, probably however for the use of the clergy. At Nakum and again at La Honradez the plaza around

¹ Palenque on investigation may cover more ground, but as yet we know very little in regard to the environs of this city.

which are grouped the stelae, rather than the higher portions of the cities, seems to be the important feature of the city.

Construction. The buildings of Tikal are in a better state of preservation than those of any other Maya site with the exception of the buildings in northern Yucatan, which are admittedly of later date. The pyramid temples of Palenque are in a more advanced state of ruin than the corresponding temples of Tikal. One reason for this is the very thick walls with a single opening at Tikal, as compared with comparatively thin walls with several openings at Palenque. There are many structures of the residential type at Tikal which are in excellent preservation as regards their lower story. The presence of a second tier of rooms, which in almost every case has fallen, has tended to preserve and protect the lower part of the building. It is therefore possible to find a large number of structures the lower stories of which are seemingly as firm and solid as the day they were built. The presence of well-preserved buildings should not however be taken necessarily as a criterion of age. Naranjo has hardly a building intact, and yet the numerous sculptures are very well preserved and show as clear an outline as many at Tikal.

The construction at Tikal is more solid, the room space being smaller in proportion to wall space than in any other Maya city. The binding between the interior mass of rubble, which may really be called in most cases concrete, and the stone facing is usually firm and, as a consequence, we find comparatively few buildings from which the veneer-like covering of worked stone has been stripped off. Where the walls remain standing the stone veneer is usually intact. At Nakum the opposite is the case, the concrete mass of the wall itself is in most instances intact, while the worked facing of stone has fallen off.

The exterior and interior walls and the floors at Tikal are usually covered by a fine layer of plaster. The corners of the buildings and the sides of the doorways are in most cases rounded.

SUBSTRUCTURES. The three great acropoleis ought to be considered in a way as substructures. There are practically no buildings at Tikal which are not built upon some form of artificial mound. In the case of the temples this takes the form of a truncated pyramid which is usually higher and has a steeper slope than similar structures in any of the other Maya centres. The sides of the pyramid are made in great steps or terraces faced with stone and often inset at the corners and panelled at the sides. In some cases the back of the temple is directly flush with the edge of the platform on the top and the foundation mound is almost vertical at the back rather than sloping. The Nakum temples however are more frequently built in this way than those at Tikal.

The residential type of building is usually erected on a low foundation mound often not more than three or four feet high.

STAIRWAYS. The exterior stone stairways are numerous. All the pyramid temples had wide steps leading from the court on which they face to the top of the mound, and again from the top of the mound, there was a short flight of steps to the floor of the temple raised slightly from the level of the summit of the pyramid. These steps are built at a greater angle than the sides of the pyramid and come out some distance beyond the line of the mound. They are often wider at the bottom than at the top. In very few cases are the steps still intact, but the supporting side wall formed by the projection is often still in a good state of preservation. In most cases it is practically impossible to trace the short stairways which must have been used to reach the top of the low mounds of the residential type of buildings.

There are, as far as can be made out at the present time, no interior stairways. The use of wooden steps must have been very common, as there are very few traces of the means necessary to ascend to the second story of the various buildings which clearly have more than one story.

The so-called "sacrificial pyramids" show in most cases remains of stairways on all four sides, in this respect resembling some of the Yucatan temples.

SUPERSTRUCTURES. The same two types of structures are seen here in Tikal as noted in the other Maya centres, — the temple with its rooms suited solely for religious worship, and the residential type of building. The five great pyramid temples which have long been recognized as the most prominent architectural feature of Tikal are by no means the only examples of this class of structure. There are many smaller temples similar in plan to the large ones, each with the typical indentation in the outer wall at each side of the building together with the slight projection of the central part of the back wall. In no other site in the Maya area is there such uniformity in the plans of the temples. The rooms usually number three, one behind the other, and the floor of the two back ones is raised slightly above the level of that of the room in front. The greatest number of these temples at one place is on the west, north, and east sides of the Great Plaza. In addition to the two great temples at the ends, there are four buildings of the same class along the northern side, three small ones at the northeast corner and behind, the acropolis with four more. There is a row of seven typical temples to the west of the Southern Acropolis. It is difficult to determine the use of so many similar structures in the same row unless each belonged to the cult of a certain deity. There is only one case, so far as we know at the present time, where the pyramid temple has more than one room in the same line. This is Structure 27 (Fig. 20), which will be described later (p. 110).

The temples usually show a far greater thickness of wall than buildings of the residential type. This may be explained perhaps by the fact that the superstructure built in many cases on the roof of the temples and commonly

called a "roof-comb" is far heavier than a second story sometimes found in buildings of the other type, and a thick wall is needed for support.

The second variety of building, the residential type, shows a much greater diversity of plan. There are no two which are exactly similar, as in the case of the temples. They consist usually of a large number of rooms and were probably the homes of the priests. There is often a close connection between a building for residence and one for worship. The indented side wall and the projecting back wall are almost never found in buildings of this class. The usual plan is that where two rows of rooms run longitudinally the length of the building with one or two transverse rooms at either end. These buildings may be found forming a court by themselves or forming one or more sides of a court the other sides of which are occupied by temples.

Buildings of this type are sometimes found consisting of two stories, the wall of the upper one receding on one side at least so as to furnish a means of access to the various rooms. As has been previously noted, wooden stairways probably led up to the second series of rooms. In one case (Structure 10) there is a building of three stories with a terrace in front of them, and this in turn is faced by two more stories opening upon another terrace (Fig. 24).

There is a third variety of structure which might almost be considered a sub-type of the first class, as it seems to have been used exclusively for religious purposes, the type called by Maler "the sacrificial pyramid." It is impossible to determine the use of these elevations. They are truncated mounds with no trace of buildings on top, but usually with the remains of stairways on each of the four sides. They are comparatively rare, four only in the Northern City and one in the southwestern part of the main ruins.

In addition to the pyramidal mounds with no traces of buildings there are several long and narrow elevations which show either very faint traces of buildings or no remains at all. Some of these undoubtedly did have at one time stone buildings of the second or residential type, whereas others certainly never had structures of stone erected upon them. We may assume that in this case the buildings were of some perishable material, as these mounds are situated in the same relative situation as those where buildings still exist.

There is still a class of remains which should be mentioned. These are in the nature of causeways connecting the southeastern section of the city with that to the north and west. These will be described in the detailed description of the site.

DOORWAYS. Where excessive width is desired the wooden beam is employed over doorways. Several are placed side by side in order to cover the opening between the very thick walls. The use of the elaborately carved wooden lintel is very common here at Tikal. At no other city, with the possible exception of Chichen Itza, do we find it used to any great extent. The

survival of the wooden lintel here is in marked contrast to the almost total absence of wooden remains at Palenque. The stone lintel is used where the width of the doorway is not too great. We have not found as yet the carved stone lintel as at Piedras Negras and at Yaxchilan.

There is always but a single entrance to the temple, whereas there may be several exterior doorways to buildings of the domiciliary type. The wall space between the doors however is always much wider than the doorways themselves, thus not giving the effect of piers, as at Palenque. There is no approach to a portico, as in the Yucatan buildings, and no round or square columns used as supports.

WALL OPENINGS. These are by no means uncommon in the Tikal buildings. They are usually small round or square perforations through the wall of the structure, probably for ventilation. In one or two cases there are interesting examples of larger openings more in the nature of windows. Here a lintel of wood is employed and the opening below is less than a foot high, but as wide as the lintel will allow. In several of Maler's plans it is impossible to distinguish between this sort of an opening and that for a door. This is especially true on the plan of Structure 69 (Maler's "Palace of Two Stories and Twenty-one Chambers in Rear of Great Temple III," No. 1, Fig. 6).

BENCHES. The use of stone benches or those built of rubble with plastered top and sides is very common. These are sometimes in the nature of platforms and occupy a space touching the back wall in front of a doorway, or they may take up the greater part of a room. In many cases these bench-like constructions have arms at either side near the side wall of the room. It is difficult to determine the use of these platforms. One excavated at the ruins of Nakum had a basin-like depression with a beautiful stucco finish. This was however found in a temple, whereas most of those at Tikal are found in the second type of structures.

VAULTS. The usual Maya vault is the only method employed to sustain the roof of a building. This may be constructed of stone with edges bevelled and smoothed to fit the unbroken slope of the vault or the stones may be arranged in overstepping courses (Fig. 40). In either case the principle of construction is the same. With very few exceptions the vault does not begin directly flush with the top of the wall, but there is a slight spring outward of two or three inches. Dr. Spinden has suggested that this serves to show that a wooden form was employed over which the vault was constructed. The shoulder would then allow the form to be removed more readily by giving it room to be slipped down. In many cases where a part of the arch has fallen it is possible to note the position of the stones forming the vault. Very often these do not rest squarely upon each other, but join only at one edge. It is difficult to understand the construction of such a vault, where the mass behind is solid concrete with the stones simply

a facing, unless some form of temporary support was employed in the construction.

There are many cases, perhaps in other centres more than in Tikal, where the method of construction seems to find a parallel in the modern use of concrete in building.

The employment of *sapote* poles stretching from one side of the vault to the other is common. The remarkable preservation of wooden remains at Tikal is seen in the large number of cross beams still in position. These are frequently cut in a simple design in the centre.

WALL DEPRESSIONS. The use of cupboard-like depressions in the walls, especially in the ends of rooms, is common in the area occupied by the ruins of Tikal. These niches are usually found in the buildings of the residential type. A wooden beam often crosses the front of these depressions. At both sides of the inner wall of the first doorway of Temple I there is a small hole, running through the middle of which is a slender stick. This undoubtedly served as a place to tie whatever covering hung over the outer doorway of the temple. One of these was also found in a building excavated at Nakum.

A depression in the face of the outer walls of buildings is not uncommon. They may have had some painted design at one time. The fine finish of the plaster in this depression as contrasted with the remainder of the wall in the Temple of the Three Towers at La Honradez supports this idea.

ROOF-COMBS. The comparatively small room space in proportion to wall space has been frequently noted in connection with the five main pyramid temples at Tikal. The very thick walls were needed in order to sustain the enormous weight of the high superstructure. It has usually been considered that the roof-combs of all the great temples were solid masonry composed of diminishing sections one upon another. Maler (No. 1, p. 49) notes that "a hungry treasure-seeker, by the way, has made an ugly break in the enormously thick masonry of the longitudinal rear wall of the temple chamber" (Temple V). Through this hole we were able to investigate the interior of the superstructure of this temple. It was found that there are a series of interior rooms. As far as could be made out, these had no purpose other than to economize material and lessen the weight on the main structure below. They had no openings of any kind for entrances, and the rooms had seemingly been closed up at the time of the construction of the building. Temple V has only a single ceremonial chamber as contrasted with the three in the other four great temples (Figs. 33, 34). Above and behind this a gallery was encountered, 18' 2" long, 2' 8" broad, and 3' 10" high, with slightly sloping walls and a flat ceiling sustained by small parallel poles set into the wall. These have disappeared, but the plaster above them is still intact and bears the impressions of the cross-beams. It is not improbable that a second and parallel gallery runs behind this. Two feet above the first a room much wider and higher was entered, also through a break made in the solid

masonry. This runs out beyond one end of the gallery, but does not reach on the other side to the central point of the gallery below. The walls of this room are built on a steady slope from the floor to the ceiling, 19 feet above. They were unfinished, although the floor had a smooth layer of plaster. The top of the room was open to the sky above, seemingly due to the falling in of some of the capstones of the vault. If we assume a second gallery below to fill out the space we must also argue that there is on the higher level a second and similar room to the east to occupy the remaining portion of the superstructure.

Maler (No. 1, p. 29) notes that one of his men climbed up to the *azotea* of Temple I and "said he had found a very tiny chamber in the middle of the first section of the roof-comb at its base (a kind of niche), which, however, contained nothing of interest." It would seem from this that the workman encountered not a "niche" but a portion of an interior room similar to those in Temple V. Structure 58, the southernmost of the seven temples in line in the southwestern section, shows evidence of an interior chamber in the mass of masonry forming the roof-comb.

It is interesting to note in this connection that interior rooms were found in the tri-tower-like superstructure of one of the buildings at Nakum. Here the comb is by no means as high or as massive as those of the Tikal pyramids. It is divided into three vertical divisions or towers, the centre one much larger than the other two. In the interior of each there is a room. That in the southern tower measures $5' 5\frac{1}{2}'' \times 3' 2''$ and $6' 3\frac{1}{2}''$ in height. As in the chambers at Tikal there are no traces of doorways, but there are small round openings at the level of the floor, seemingly to allow for drainage. Entrances were obtained through the roof, which had partially fallen in. The proportion of wall space to room space in the main structure below is almost as great as that found in Tikal. One of these rooms was completely excavated, but nothing of interest was found.

Maler (No. 1, p. 50) suggests in relation to Temple V that there may have been a fourth and a fifth section to the roof-comb, with window-like perforations added to the superstructure. Perforations are found at Nakum in the building just mentioned. These run through the entire superstructure and have no connection whatever with the interior rooms. These openings seem to foreshadow the comb typical of the ruins on the Usumacinta River, which is composed of a lattice-like structure in stone. The interior rooms may be the prototype of the space between the two perforated and sloping walls of the roof-comb at Palenque and that seen on the Usumacinta River.

Stelae and Altars. There seem to be at least three different situations in which the stelae and altars are found. As in other cities the greater part of the monuments occur in front of the temples in a line directly before the stairway. These do not always occur symmetrically placed in reference to the central point of the stairway. A single stela with its altar is usually to

be found slightly in advance of this line. In addition to these stelae which are closely correlated with a certain temple, other stelae and altars are found, apparently quite independent and not in relation to any one temple. In this class are the first and second rows of stelae and altars ranged along the northern side of the great court. They are not, like the third line behind, correlated with any building. They correspond in position to many of the stelae at Copan and Quirigua, which are scattered over the courts without any direct connection with the temples. The third class of stelae at Tikal is composed of isolated stones. These are found not in a public place like the main plaza, but sequestered behind small mounds in very small courts. There are two examples of the isolated stelae in the Northern City, one (Structure 86) with a stela and an altar, and the other (Structure 81) with the altar alone remaining. The best example is found in the northwestern section of the city (Structure 72) where Stela 16 and Altar V occur enclosed within a small court bounded by low mounds. This stela and altar, the latter discovered by Maler, are the very best examples of their respective types found at Tikal. The importance of these shows that public position is not a criterion of value. Around this stela and altar, hidden away in their little court, undoubtedly centred the worship where only the chosen few took part.

Only seventeen of the sixty-eight stelae noted up to the present time at Tikal and six altars show signs of decoration.¹ This would seem to indicate that there was some form of stucco decoration or, more possibly, at one time a painted decoration once covering the plain stelae but now completely disappeared. In the arrangement of stelae as noted in the plan (Plate 29) the sculptured stones occur in no definite order in connection with the unsculptured ones. Moreover, the greater number of the stelae and altars are not in front

¹ LIST OF THE STELAE AT TIKAL.

Eastern Section, below terrace	1,	(No. 17)
Great Plaza, northern side	13 + 5,	(Nos. 8-14)
“ “ before Temple I	2	
“ “ “ Structure 29	1	
“ “ “ “ 32	3,	(Nos. 6, 7) [Altar IV]
“ “ “ “ 33	6,	(No. 5) [Altars II and III]
“ “ “ “ 34	4,	(Nos. 3, 4) [Altar I]
Northern Acropolis, “ “ 36	2,	(Nos. 1, 2)
“ “ “ “ 42	4,	(No. 15)
Southwestern Section, “ “ 55	1	
Northwestern “ “ Temple IV	1	
“ “ “ Structure 70	6	
“ “ “ “ 72	1,	(No. 16) [Altar V]
Northern City, “ “ 85	4	
“ “ “ “ 86	1	
“ “ “ “ 80	4	
“ “ “ “ 78	9	
“ “ “ “ 81	0	[Altar VI]

The numbers in braces refer to the sculptured stelae as enumerated by Maler. The sculptured altars are indicated in brackets.

of the five largest temples but before the smaller temples on the north side of the Great Plaza. A small and seemingly unimportant temple (Structure 80) in the suburb of Tikal, which we have called "The Northern City," has nine stelae and altars before it.

As for the larger buildings of the temple class, Temple I has two stelae and their altars before it, Temple II, a single altar, and Temple IV, a stela and altar. Temples III and V have no monuments before their stairways.

It is suggested that possibly there existed at one time carved wooden stelae. The unsymmetrical position of several of the stone stelae in relation to the centre of the stairway before which they occur may be an indication that the symmetry or "balance" of the general stela formation was maintained at one time by wooden monuments. The carved wooden lintels frequently met with at Tikal show that wood-carving attained here a height reached in few other places in the Maya area. It is not naturally to be supposed, however, that the stelae and altars were all erected at one time, and if they commemorated some historical or religious event, as seems probable, their erection would have been spread over a large number of years. This is perhaps a more natural explanation of the many gaps appearing in the line of stelae and the fact that there are many temples before which there are no monuments.

DECORATION OF STELAE. A study of the decoration of the stelae shows a certain classification possible, according to the design. Stelae 1 and 2 were found together, as already stated, in an isolated court. Maler (No. 1, p. 35) suggests that Stela 2 was made to replace Stela 1. It is certain that they are very similar both in design and in method of treatment. The figures, however, face different ways. These stelae are quite distinct from any of the other monuments. The design covers not only the front, but runs over on the two sides as if they were in the same plane. This is seen in several of the Quirigua stelae (Maudslay, 1889-1902, Vol. II, Plates 33, 35). The face is in profile, the body in front view, and the feet of Stela 1 at least in side view. The hands meet in front of the body, and support the same sort of ornament on the breast as that seen on many of the stelae at Copan and elsewhere.

Stelae 5, 11, and 16 are the best executed ones in Tikal. They suggest in their treatment some of the stelae and lintels from Piedras Negras and Yaxchilan. The bound captives seen at the bottom on stelae 5 and 11 show further similarity with the designs in the Piedras Negras monuments and also on those from Naranjo. The design on the front is a unit, a single figure with head in profile and with elaborate head-dress surrounded by small groups of hieroglyphs.

Stelae 3, 4, 7, 8, 9, 10, 12, 13, and 17 form a more or less distinct class by themselves. The designs on the front are far less elaborate than those of the preceding stelae. There is none of the careful work as shown in Stelae

5, 11, and 16. The hieroglyphs especially show much carelessness in their drawing. They are often not exactly square, and may show a far more primitive type than those before mentioned. Stela 5 seems to have the date 4 Ahau 8 Yaxkin⁽¹⁹⁾, end of Tun 13. This would make it 9, 15, 13, 0, 0. This is 260 years later than the 9, 2, 13, 0, 0, 4 Ahau 13 Kayab⁽²²⁾ of Stela 3, over 240 years after the 9, 3, 6 or 11, 2, 0 of Stela 10 and over 180 years later than the 9, 6, 3, 9, 15, 10 Men 18 Chen⁽⁴⁰⁾ of Stela 17. These three latter all show the primitive type of sculpture.

DATES UPON THE STELAE AND ALTARS.¹ We have already mentioned a possible chronological relationship between the design on certain of the stelae and the corresponding dates. This is a subject in which Dr. H. J. Spinden was the pioneer in his work on the stelae of Copan.²

The only two clear dates on the inscriptions now available from Tikal are those on Stela 3, 9.2.13.0.0, 4 Ahau 13 Kayab⁽²²⁾ and Stela 17, 9.6.3.9.15, 10 Men (18 Chen⁽⁴⁰⁾). Another early date appears to be that on the lower part of Stela 10. This is 9.3.6 (or 11) 2.0, which would give us 5 Ahau 8 Pax⁽³⁵⁾ if 6 is the number of the Tun, and 11 Ahau 3 Muan⁽⁴⁰⁾ if 11 is the number in the third place.

A much later date is probably to be seen on Stela 5 (east). There the day and month are 4 Ahau 8 Yaxkin, and the end of Tun 13 is shown. This, if the reading is correct, would give us 9.15.13.0.0. The western side of Stela 5 is not so satisfactory. The day and month seem to be 12 Ahau 8 Xul.⁽⁴⁷⁾ If the Uinal and Kin numbers are zero, this would make it 9.1.5.0.0. This is unlikely, as the date of the eastern side would then be 280 years later than that on the western side.

Stela 16 shows the day 8 Ahau. The month looks like 13 Muan. Mr. Bowditch suggests that the glyph in A 4 may be read as the ending of Uinal 14 instead of the usual Tun ending. In this case 9.2.4.14.0 would give us 8 Ahau 13 Muan. If, on the other hand, the number 14 refers to the Tun ending, we would have 9.11.14.0.0., 8 Ahau 18 Mol. But the month number is clearly 13 and not 18. The date 9.2.4.14.0 would make Stela 16 among the earliest at Tikal, whereas the sculpture and the drawing of the glyphs seem to show that it belongs to the later period with Stela 5 and 11.

Altar V shows an interesting series of calculations. The day and month near the top, 1 Muluc 2 Muan⁽¹⁸⁾, seems to be the starting point. To this 11.11.18 are added, giving 13 Manik 0 Xul⁽³⁰⁾. 8.9.19 are next added, resulting in 11 Cimi 19 Mac⁽³⁸⁾. Three unexpressed days then intervene between this and 1 Muluc 2 Kankin⁽³⁸⁾, the final day and month sign.

Decoration of Buildings. The façade, as in all other Maya cities, is usually divided into horizontal zones, separated from one another by medial mould-

¹ I am indebted to Mr. Charles P. Bowditch for valuable suggestions in regard to the decipherment of the dates of the Tikal inscriptions.

² This work, presented in his Doctor's thesis on June 29, 1909, will shortly be published by the Peabody Museum.

ings or by a single projecting string course. The lower zone in almost every case is plain, being finished by a smooth layer of plaster. When the upper division is also plain the moulding is usually widened and elaborated by some design either in stone or stucco (Structure 10, Maler, No. 1, Plate 8, Fig. 1). The upper zone is often made to slope inward, suggesting the typical pyramid temple at Palenque, and on this remains of designs are sometimes found.

The walls of the five great pyramid temples are perfectly plain as far up as the lintel of the doorway. Above this an elaborate frieze at one time ran around the building. The main decoration, however, was expended upon the roof-comb, where remains of masks and other designs of heroic size can still be made out.

In a few cases the façade is broken into small vertical sections by lines running up and down. The plan of Structure 1 (No. 1, Fig. 1) shows this. As before noted, this is quite opposite to the usually horizontally placed design on Maya buildings.

The mask is the usual element of design. It is found over doorways and is built up in great part of stucco. The masks on the roof-combs have just been noted, but the remains are in such a state of ruin that it is impossible to reconstruct the original design.

The artistic feeling found vent in the sculptured stone stelae and altars and in the carved wooden lintels. These all show a high development both in composition and in technique.

INCISED DESIGN. The figures scratched on the interior walls at Tikal are more varied and show much more skill than those usually found in a similar position in other Maya cities. Some of the drawings of the terraced pyramids (No. 1, Figs. 9 and 13) with their stairways and the high-roofed buildings on their summits, were found inside Temple II, which is itself a similar structure. They seem to suggest that the prototype of the roof-comb was the high roof of thatch. Another class of wall scratchings is that of a person with human or animal head standing on a low platform (No. 1, Figs. 14-16). He has a human or bird head hanging from his back. The serpent design comes from the top of his head, and in front on a seat or altar is a diminutive human figure, or what may be a blazing ball of incense.

Orientation of the Five Great Temples. It has often been noted that the temples of Tikal seem to be more correctly orientated than the structures of any other of the Maya sites. Unfortunately it was possible to take the position of the five great temples only, but there is reason to suppose that the other structures would show similar results. Mr. Merwin carried on the work of determining the orientation, and the following are the results of his survey:

The orientation of these temples was obtained by finding in each structure the bearings of the outer front wall and of the back wall of the innermost chamber, these bearings being referred to the true meridian. A high

grade transit was used and all linear measurements were made with a steel tape. Stations were located on the top of the five pyramids a short distance in front of the doors of the temples. As these structures were high above the forest, it was possible to see clearly from one station to another. At first a permanent base line was laid out, to which the azimuths of all the lines between the different stations were subsequently referred. When the true meridian was found the deviation of this base line from true north was noted. At Station V¹ the true meridian was found by observations on Polaris at its western elongation, and subsequently at Station I the meridian was obtained by observing Polaris at its lower culmination. These two methods of finding the true meridian furnished a check on the work. A variation of $0^{\circ} 8' 0''$ was noted.

The method of finding the orientation of the front wall of one of the temples was to centre the transit over a stake at the station located a short distance (usually about a foot) in front of the line of the outer wall of the building near the doorway. The zero of the limb of the transit was then placed on the meridian of the base line, either by a back sight on another station or by direct reference to the original base line. Two points were located on the wall, one at each corner of the building, and their azimuths were read. Then, having found the angles, the distance of the stake from the line of the wall and the distance of the two points from the stake, it was but a simple trigonometric problem to obtain the azimuth of the wall.

It will be noted that the azimuth of the wall was found by two distinct yet similar operations. Because of the short distances, irregularities of the masonry of the walls, etc., a difference in the two results was to be expected, but this difference was very slight. The same general method was used in finding the orientation of the back walls of the back rooms.

The following table gives the results obtained; referred to the true meridian:

Temple.	Outer Front Wall.	Back Wall of Back Chamber.	Variation.
I	N. $9^{\circ} 3' 30''$ E.	N. $8^{\circ} 57' 45''$ E.	$0^{\circ} 5' 45''$
II	N. $9^{\circ} 51' 30''$ E.	N. $9^{\circ} 7' 0''$ E.	$0^{\circ} 44' 30''$
III	N. $18^{\circ} 16' 30''$ E.	N. $16^{\circ} 39' 0''$ E.	$1^{\circ} 37' 30''$
IV	N. $7^{\circ} 1' 30''$ E.	N. $9^{\circ} 18' 45''$ E.	$1^{\circ} 17' 15''$
V	N. $79^{\circ} 13' 2''$ W.	(in ruin)	
Average magnetic variation taken at 10 o'clock A. M. East $5^{\circ} 27' 40''$.			

¹ The temple and the station near it have corresponding numbers. Work was begun at Station V and carried forward to the other stations in the following order II, I, III, IV.

It will be noted that as regards the deviation from true north the front wall of four of the five temples (I, II, IV, and V¹) shows great uniformity. The variation of these four temples is from 7° 1' 30" (Temple IV) to 10° 46' 58" (Temple V), making a difference of only 3°, 45', 28" in the four temples themselves. Temple III, for some reason that cannot be explained, shows a much larger variation from the true north, 18° 16' 30."

In an examination of the amount of variation between the front walls of the temples and the back wall of the innermost rooms it will be noted that in Temples I, II, and III the back wall is more nearly oriented than is the corresponding front wall. The variation is very slight in Temples I and II. We might reasonably expect that greater care should be expended in orienting the inner room, especially if it was used as a shrine. In the case of Temple IV the front wall is 1° 17' 15" nearer the true north than the back wall.

From so small a series it is impossible to draw any conclusions. It is to be hoped that an accurate orientation of many more of the Maya buildings will soon be available for future study of this important point.

DETAILED DESCRIPTION.

In a description of the main structures at Tikal it is not necessary to enter into details which would be but a repetition of much that occurs in the first number of this volume. The endeavor is to add certain points which have come out in our own investigations. It is worthy of emphasis, however, that as many of the buildings are in such a state of ruin two opinions may well be entertained in regard to the original plan and the arrangement of the various structures.

For ease in description we will divide the site into several sections which are topographically more or less distinct:

1. The Southeastern and low-lying part of the city.
2. The Central Acropolis, bounded on the north by the Great Plaza and on the south by the southern ravine.
3. The Eastern Section, to the east of the Great Plaza and north of the inclined way.
4. The Great Plaza, with Temples I and II.
5. The Northern Acropolis, bounded on the north by the northern ravine and on the south by the Great Plaza.
6. The Southern Acropolis and Temple V, bounded on the north by the southern ravine and on the south by a second ravine.
7. The Southwestern Section, bounded on the north by the shallow ravine between Structures 68 and 69 and on the east by the western edge of the southern ravine.

¹ Temple V faces the north, and therefore the reading should be subtracted from 90°, giving 10° 46' 58."

8. Northwestern Section, including Temples III and IV.

9. The Northern City, separated entirely from the main part by the northern ravine.

1. **Southeastern Section.** Building 1 (Maler's "Palace of the Façades with Vertical Grooves," No. 1, Fig. 1) with its quadrangle is the only structure which is well preserved in this section of the city. The eastern and northern façades are divided into vertical panels by deep grooves. It is very

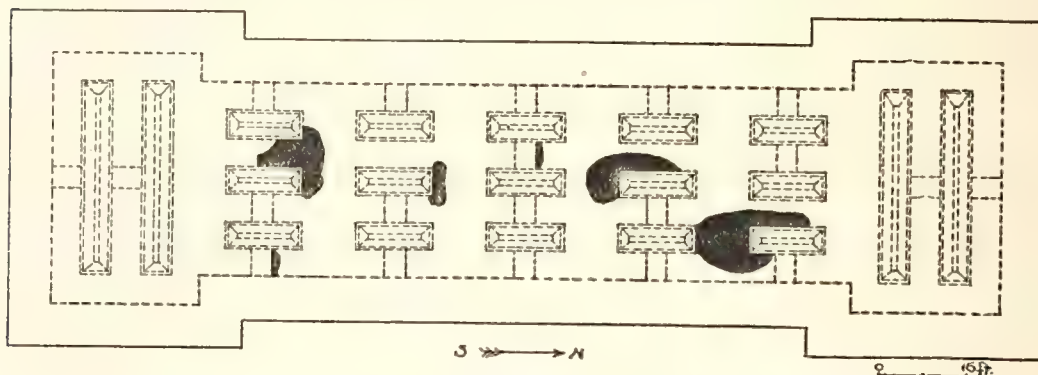


FIG. 18 — TIKAL: Plan of Structure 2.

unusual to find lines running up and down a building. A second feature worthy of note is the fact that the structures on the four sides of the court are connected at the corners. The main building faces on the east a court, with a terrace on the north and enclosed by mounds on the east and south.

Directly to the west of the quadrangle of Structure 1 is a second court, the western building of the first forming the eastern side of the second. The buildings to the north and south of this second court are entirely destroyed, but the plan of that on the west (Structure 2) can be determined by the remains of several of the rooms (Fig. 18).¹ It is three rooms in width, with two transverse rooms at either end. To the north and south of this court there are still other quadrangles formed by the remains of mounds.

The western structure (3) of the southern of these courts differs from the usual Tikal building. The unevenness of the mound enables one to form some idea of the former plan (Fig. 19). A single row of rooms seems to have been built around a very narrow open space in the centre. The two corner rooms on the north come out beyond the transverse rooms on that end.

Directly to the west is Structure 4 (Maler's "Palace of the Rear Chambers and Great Stone Benches," No. 1, Fig. 2). From the amount of the débris to the north of this building it seems hardly likely that there was a

¹ An attempt has been made in drawing the plans of the various buildings to indicate in solid black only the walls which were actually seen in position. Where the walls are covered with débris or have disappeared, the probable position is indicated by dotted lines. Further investigation will undoubtedly show that changes are necessary in the assumed portion of the plans.

northern half which has disappeared, as noted by Maler. The mound indicated on Maler's plan to the west of the main structure may be identified with the remains of a four-room edifice running east and west which joins the main structure on the northwest corner. Again, from a study of the fallen walls and from measurements, the end rooms of the building on Maler's plan seem questionable.

Still continuing to the west, one approaches several mounds, including an unimportant court open at the corners and formed by low mounds with no buildings remaining.

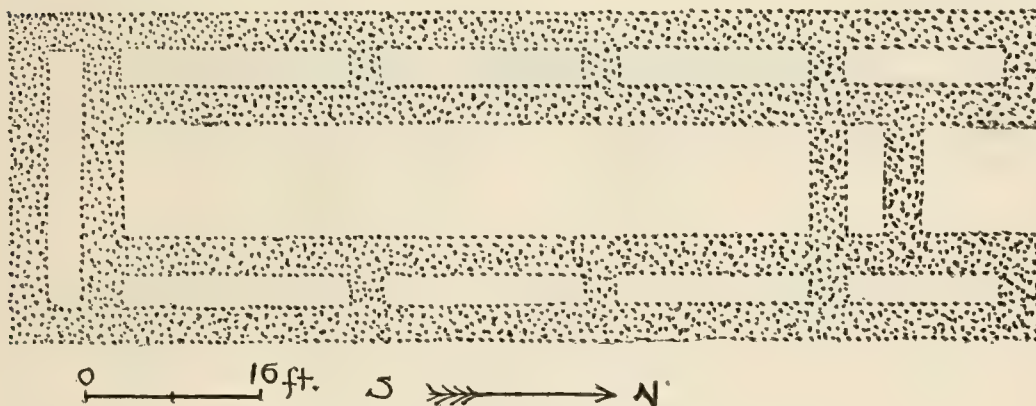


FIG. 19. — TIKAL: Plan of earthwork, called Structure 3.

2. **Central Acropolis.** From the low-lying Southeastern Section of the city it is possible to approach the main and central part of the ruins in two places. The first is by an inclined way running southeast and northwest and bordered on both sides by low earthworks. It is the only example in the entire group where the construction is not more or less correctly oriented. The southern of the two prolonged constructions ends at the pyramid of Structure 27, while the northern one starts at a large platform mound and runs to a great pyramidal mound on which there are no traces of buildings.

The second means of approach to the main and higher portions of the city to the northwest is across the deep ravine running east and west between the Central Acropolis and the southern part of the city. This is made possible by a raised way directly north of the unimportant court to the west of Structure 4. This artificial roadway may have been in the nature of a dam thrown across the ravine, thus making the depression a reservoir for collecting rain-water. No opening could be found in it, and the high ground to the north, south, and west would have served as an important watershed to supply the reservoir. Small portions of a cement-like covering were discovered along the floor and sides of the ravine which points still further to the theory of a dammed ravine. The *aguada*, where water is now obtained, is some distance from the ruins, and in the dry season is a most

uncertain source of supply. It alone could not have furnished enough water for the use of the inhabitants of the city.

From the northern end of the raised road the ascent is made by a series of terraces to the Central Acropolis of the city. On one of the first levels there are several unimportant mounds, together with Structure 27, Figs. 20, 21 (Maler's "Three-storied Palace with Three Chambers in the Top Story,"

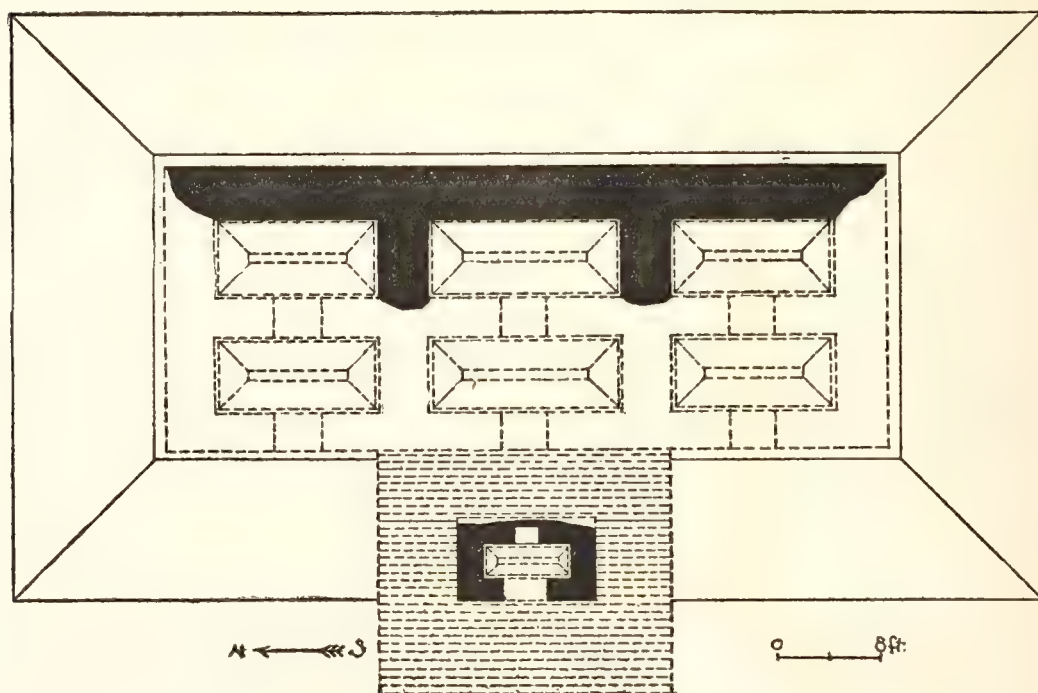


FIG. 20. — TIKAL: Plan of Structure 27.

No. 1, p. 25), into the base of which one of the mounds of the inclined way runs. The high mound of Structure 27 with its building may be mistaken at first for one of the main pyramid temples. The three rooms of the main building are in line rather than one behind the other. It suggests the plan of the temple found at Palenque, with a middle shrine and two lateral chambers. The unique feature of the structure is the construction containing a small chamber projecting from the middle of the stairway about halfway up the mound. The plan is doubtful in regard to the story between this minute cell-like room and the main temple above. The middle story probably consisted of six rooms. A suggestion as to the possible arrangement is shown in Figs. 20 and 21. Fig. 20 gives the three rooms of the upper story and the three rooms of the outer tier of the second or middle story. It may be that these three rooms were connected. The three interior rooms of the second story are assumed to be similar to the single row of rooms in the top story.

From this structure westward there stretches an almost unbroken line

of mounds of various heights, marking the northern edge of the great Central Acropolis.

The end walls of Structures 5 and 6 to the southwest of 27 are well preserved and mark the opening into a court surrounded by long mounds. The northern side opens upon a still higher but smaller plaza, the west side of which is formed by Structures 24, 25, and 26. The first contains three parallel rooms with portions of the north and south walls still standing.

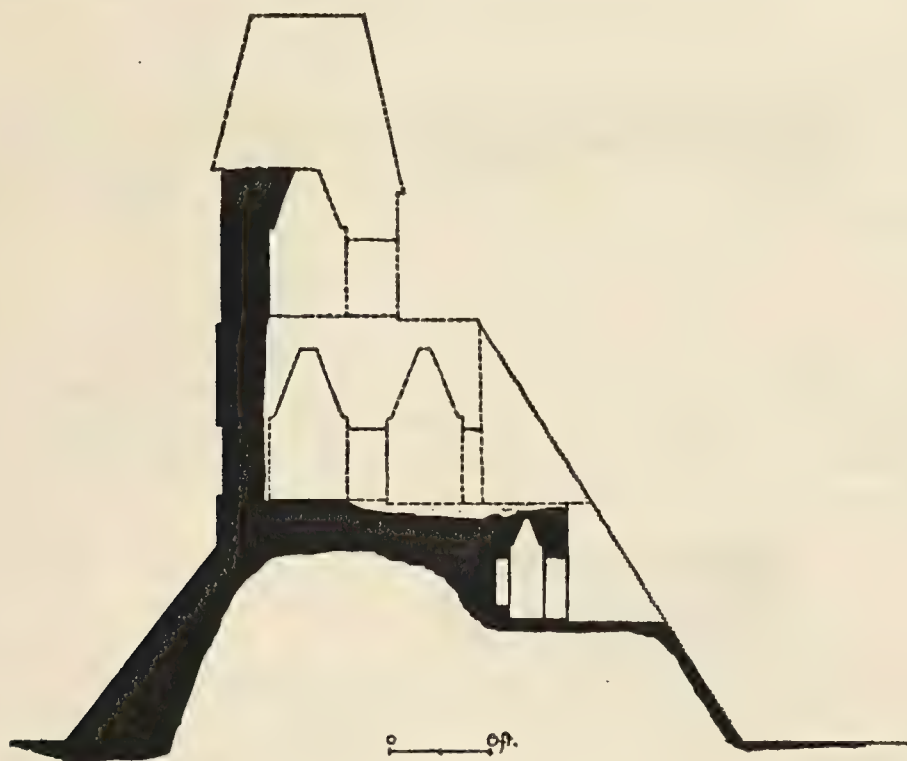


FIG. 21 — TIKAL: Cross-section of Structure 27.

The rooms in Structures 25 and 26 give a good idea of the construction of the long mounds which bordered the various courts. Undoubtedly these mounds, many of which now show no trace of buildings, each contained a single or double row of rooms. The larger court to the south is bounded on the west by Structure 8. The remains of a transverse room and the ends of two of the longitudinal rooms are still to be made out.

To the west of this lies the court formed by Structures 10, 12, and 13. The most important buildings are on the south, Structure 10, Figs. 22-24 (Maler's "Palace of the Five Stories," No. 1, p. 15). Fig. 24, the cross-section, shows the relationship of the various parts of this building. The main structure is a unit containing three stories and fully described by Maler. It is a detached building, and interesting on account of its good preservation. It faces a terrace on the south, and there is no entrance to the building from

the square on the south side of which it stands. Maler's Plate 8, Fig. 1, shows the unbroken north wall decorated with an elaborate moulding of

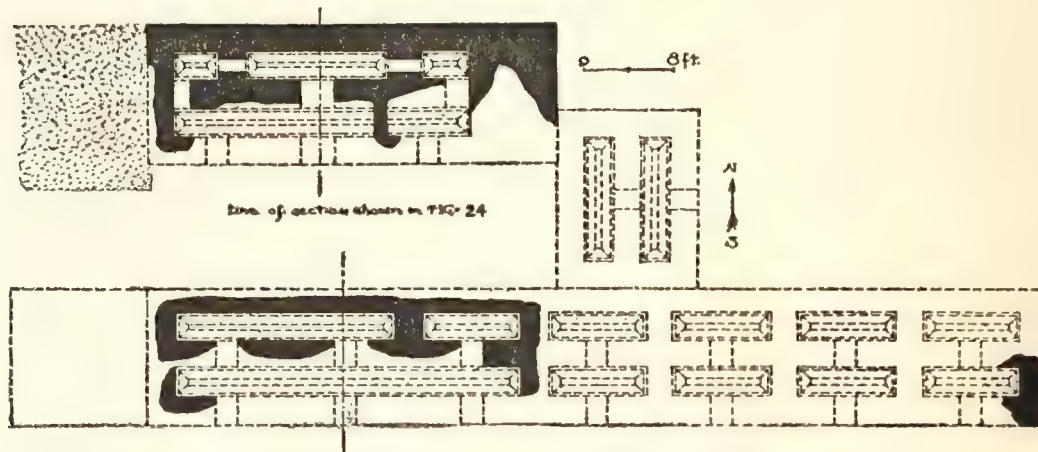


FIG. 22. — TIKAL: Plan of Structure 10, first and third stories.

stucco. The elongation of this building on the west was clearly later in point of time, as it formerly concealed a mask on the western end of the building. This structure contains what corresponds to the third, fourth, and fifth stories of the whole edifice, Fig. 22 showing the third and Fig. 23 the fourth story.

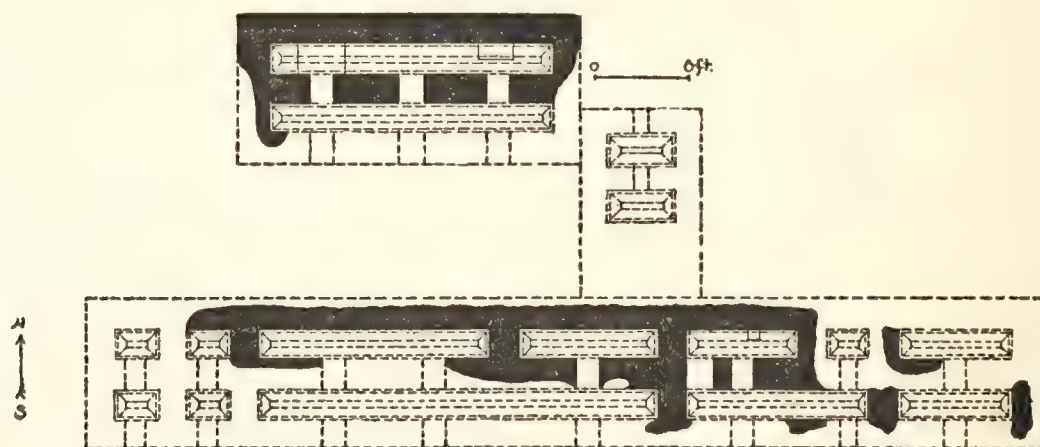


FIG. 23. — TIKAL: Plan of Structure 10, second and fourth stories.

A change of plan is seen on the eastern end of the main structure (Fig. 22). A projection, probably of solid masonry, was added, evidently when the two upper stories were built. To the east of this addition there is joined a building of two stories, not shown on the cross-section. The lower range (Fig. 22) contains two rooms running north and south, one opening into the other and both about on the level of the small court to the east. Above, but

receding slightly, is a story also containing two rooms (Fig. 23) but running east and west. In height this second story comes about halfway between the stories of the main structure which we have called the third and fourth.

The terrace in front of the latter is faced with two tiers of rooms which in turn open upon a lower terrace. To the south the land then falls away rapidly to the deep southern ravine. These two stories are to be considered



FIG. 24. — TIKAL: Cross-section of Structure 10.

as the first and second stories of the whole structure, Fig. 22 showing the first and Fig. 23 the second of these tiers of rooms. The lower or first story has two ranges of rooms, those to the east being entirely in ruins. The masonry at the southeastern corner shows the end of the building. The second story (Fig. 23) seems to be shorter on the east, but rooms may be made out on the west. The plans of the eastern and western ends should be considered as merely tentative.

Returning to the court, to the north of Structure 10 we find interesting buildings on the eastern and northern sides. That on the east (Structure 12, Fig. 25) has two parallel galleries with two doorways between. The front room has a partition, which seems clearly to be later than the original building. Structure 13 (Fig. 26), on the north of the court, shows several well-preserved rooms. The corner between 12 and 13 was filled in at a later date, probably with solid masonry. The court is bounded on the west by a mound containing no traces of rooms, but leaving a passage in the northwest corner to the court to the west.

This quadrangle to the west is to be especially noted, as around it are grouped several well-preserved buildings. On its southern side is Structure

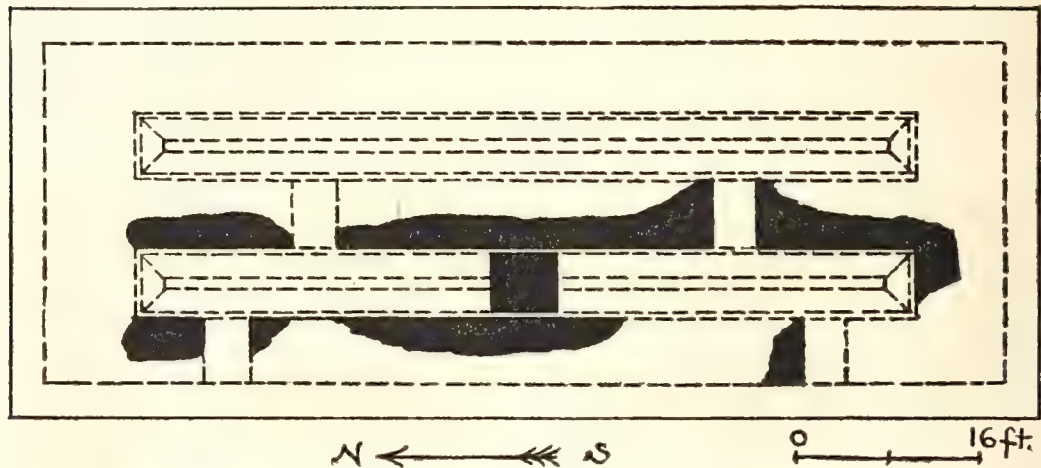


FIG. 25. — TIKAL: Plan of Structure 12.

14 (Maler's "Palace of Two Stories Opposite Great Temple V," No. 1, Fig. 3). It is not necessary to enter into a description of this building, as it is well explained by Maler. It is to be noted, however, that there is no evidence of the connection between this edifice and Temple V. The deep southern ravine

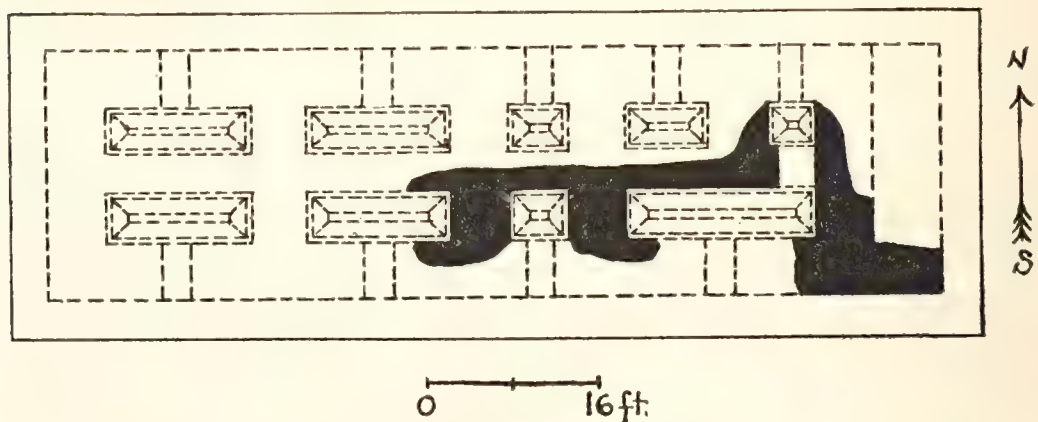


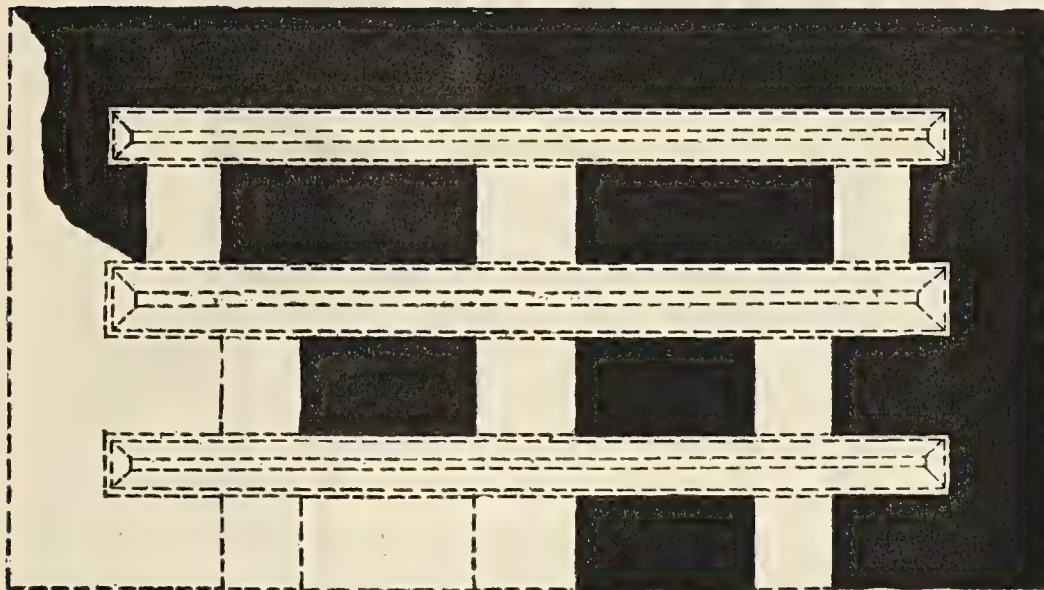
FIG. 26. — TIKAL: Plan of Structure 13.

runs between the two, and intercourse would not have been easy. Moreover, this structure faces the court to the north and not the Temple to the south, although there are rooms on the southern side. Structure 14 and the court on which it stands are shown in the cross-section of the city (Plate 30).

The northern side of the court is bounded by three buildings (Structures 15, 17, and 18) the ends of which rather than the sides face the court. Maler (No. 1, p. 23) seems to have mistaken the first of these three buildings

(reckoning from the east) for the structure which is in the same line as the mound forming the western side of the court of Structure 10. Structure 15 is to the west of this line and is the one which has a room in the northern end from which an excellent view may be obtained of Temple I. The second structure (17, Fig. 27) has three chambers of equal length, and the third building (Structure 18, Fig. 28) is built around three sides of a small

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FIG. 27. — TIKAL: Plan of Structure 17.

court. The arrangement of rooms may clearly be seen from the plan. The later addition on the southwest corner is so badly destroyed that no attempt was made to make a plan of it. These three buildings are on the northern edge of the great Central Acropolis. There is probably a fifth structure (16), not mentioned by Maler, directly north of these but on a lower level, a sort of terrace jutting out from the almost perpendicular wall of the height. Remains of two rooms at two different levels may be made out. It must be added that, so great is the stage of ruin in this special place, it is difficult to attempt a detailed restoration of the original plan.

The western side of the court we have been describing is bounded by Structure 19. This faces the east and not the northeast, as noted by Maler (No. 1, p. 23).

The remains forming the Central Acropolis still continue to the west. From the court just described there opens another at a lower level but bounded by mounds on the north, west, and south, and on the east by Struc-

ture 18 and its addition. This quadrangle has an opening near the north-west corner leading down to the main plaza below. The northern mound (Structure 21) is prolonged to the west until it is within a few feet of Struc-

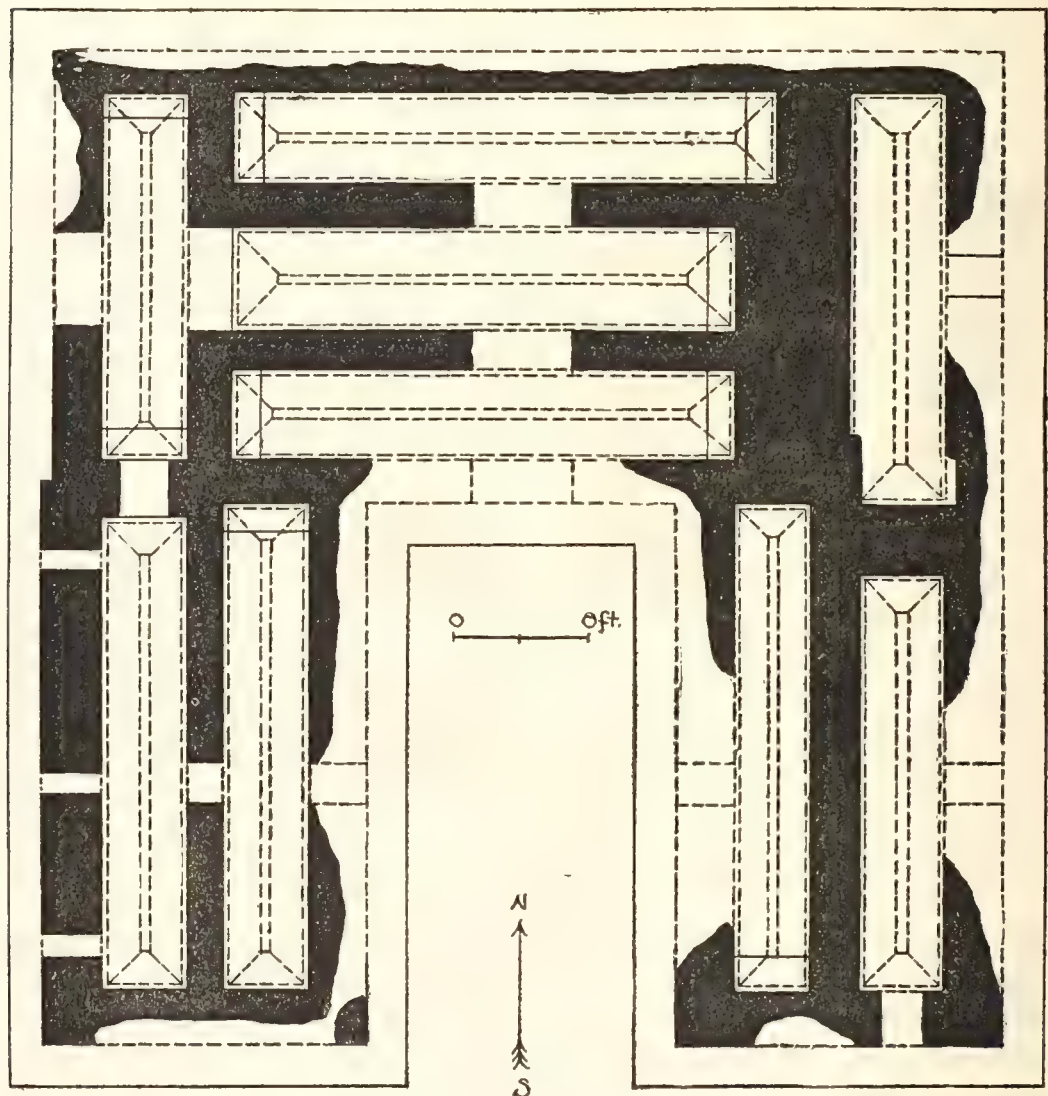


FIG. 28. — TIKAL: Plan of Structure 18.

ture 22. The southern wall of this mound facing the southern ravine is still well preserved. The rooms, as Maler states, must have faced the Great Plaza to the north.

Structure 22, just west of the western projection described above, is of the temple type. It is almost exactly south of Temple II. Maler (No. 1, p. 32) mentions a second temple to the west. This could not be found.

3. **Eastern Section.** It seems best in the description to return eastward and start again at the northern end of the inclined way. The north border-

ing mound, as has been stated, ends at a large platform mound which shows no trace of buildings. There is a sharp declivity to the north and east of this, marking the side of the northern ravine. To the west of this terrace

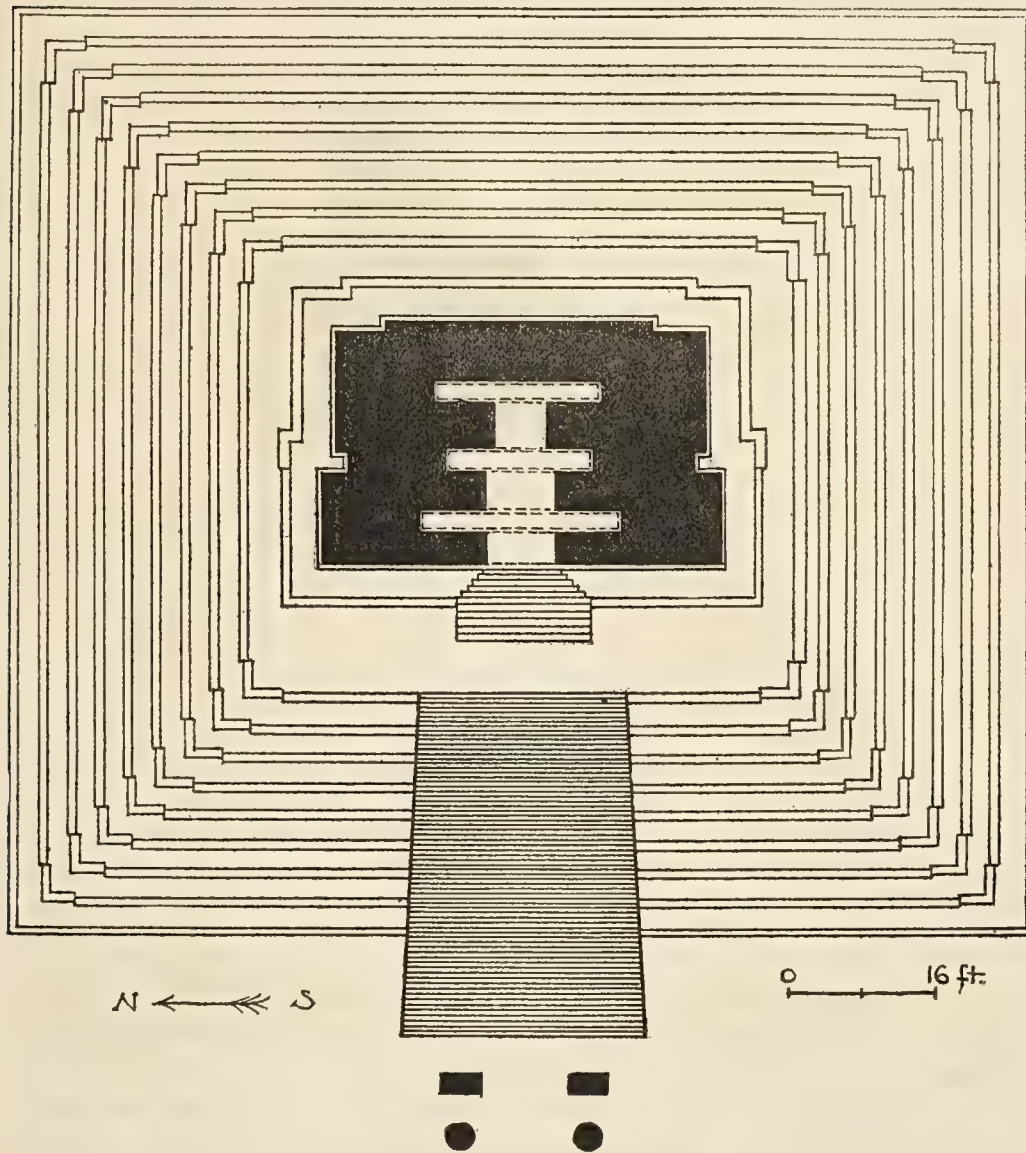


FIG. 29. —TIKAL: Plan of Temple I.

mound there is a large level stretch running as far as the platform on which Temple I stands. In the east it has a rectangular system of earthworks enclosing four other low elevations, which seem to be platforms probably for wooden buildings, as there is little stone débris. The western opening mentioned by Maler (No. 1, p. 26) was not made out. Directly to the west there are the remains of two buildings. They are not equal in size, the eastern one being much smaller than that to the west.

The northern edge of the terrace is lined by three long mounds. These increase in height from east to west. The one to the west shows remains of a temple structure. It is below the line of these mounds on the side of the northern ravine that Maler found Stela 17.

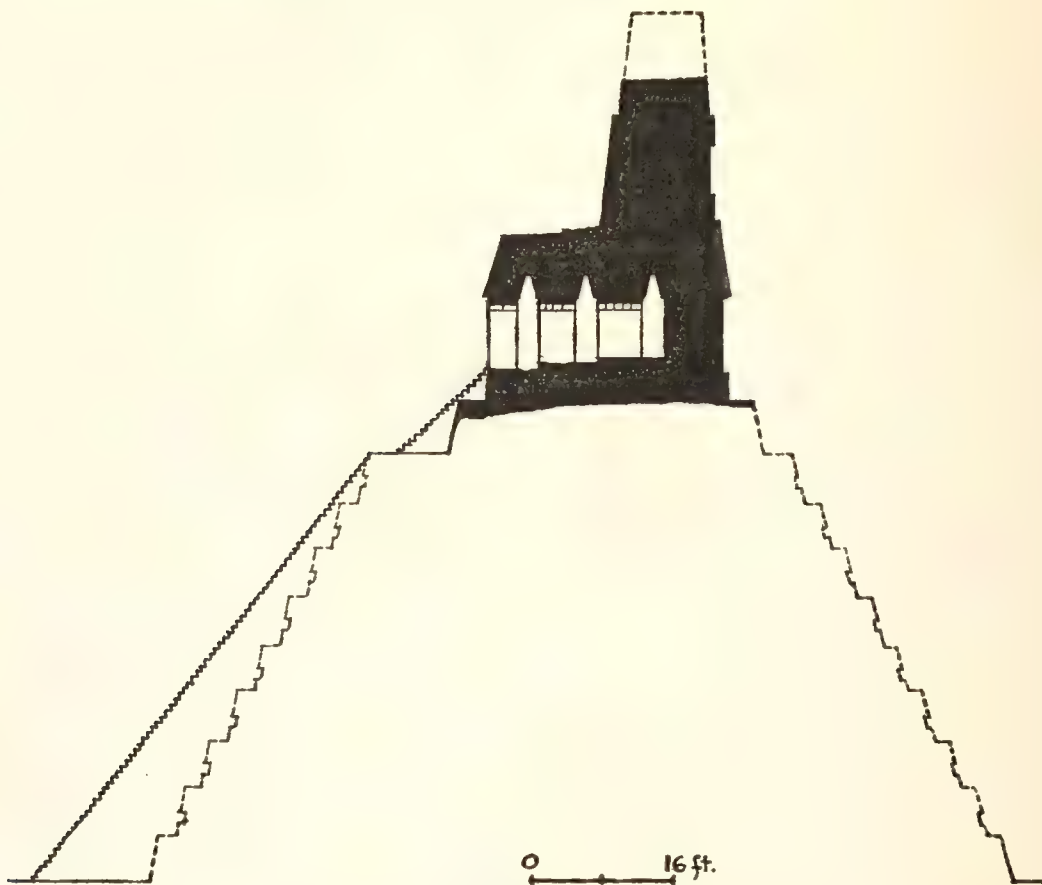


FIG 30. — TIKAL: Cross-section of Temple I.

The western side of the level terrace just described is bounded by a second and higher terrace, the level of the main plaza of the city, and on the eastern edge stands Temple I and Structure 28.

4. **Great Plaza.** This great court is clearly the most important part of the whole city. It is bounded on the north by the Northern Acropolis and a triple row of stelae and altars, on the east by Temple I and Structures 29 and 30, on the south by the western part of the Central Acropolis, and on the west by Temple II.

The five great pyramid temples, as has been stated, are the most important architectural features of Tikal, and we have two of them facing this plaza. They have been fully and accurately described by Maler. It is well, however, to show the detailed plans, as the various temples differ in minor details. Temple I is shown in plan and cross-section in Figs. 29 and 30.

Two plain stelae and their altars occur in front of this temple.

To the south of Temple I are two parallel mounds, seemingly the remains of buildings. To the north of the same temple there is a row of three small temples (Structures 29-31), the two southern ones having two rooms

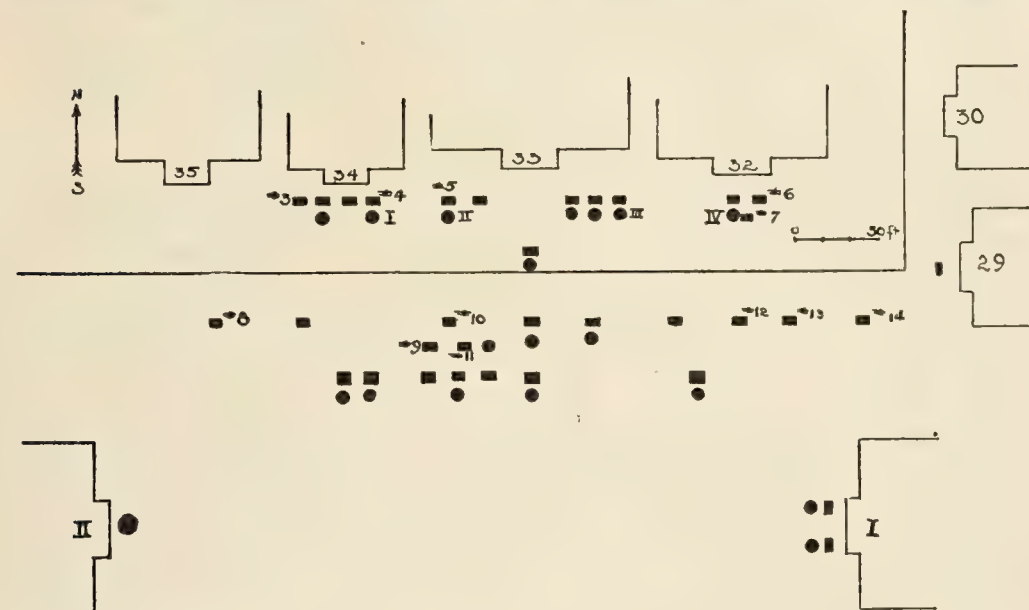


FIG. 31.—TIKAL: Present position of the stelae and altars in the great Plaza.

and the northern one three rooms each. They fill in the northeast corner of the Great Plaza. These little temples are in plan very similar to the great pyramid structures,—a niche in each side wall and a projecting middle portion in the wall at the back. The southern of these three has a single stela erected in front of the short flight of steps. To the east of the three there is a long structure (28) containing a single row of rooms. This faces the edge of the terrace to the west. Part of the back wall is still well preserved

The northern side of the Great Plaza has a most important series of stelae and altars together with a row of four temples (Structures 32-35) forming the southern face of the Northern Acropolis. The stelae and altars were originally arranged in three lines, the first two on the general level of the court, the third raised on a low terrace. The first row was composed of five large undecorated stelae each with a round altar. The second row consists of thirteen stelae smaller than those in the preceding line. Seven of these are sculptured (Nos. 8, 9, 10, 11, 12, 13, 14). Maler states (No. 1, p. 34) that all excepting No. 14 have before them plain circular altars. These we were unable to find in every case. Fig. 31 shows the

present position of the monoliths. The alignment is not as straight as it evidently was originally. Four of the smaller stelae are now out of place. Several small stones, evidently pieces of broken stelae, were noted between Stelae 8 and 10, and 10 and 12.

The third row of stelae and altars on a low terrace above the general level of the plaza may be correlated with the temples in front of which they are placed, and they will be considered in connection with these buildings.

These four temples (Structures 32-35) are built each on its own pyramid, and they form the facing of the hill which has been called the Northern Acropolis. These pyramids rise high above the level of the floor of the plaza to the south, whereas their northern side slopes down to the level of the Acropolis behind. These four buildings have the typical plan of the Tikal temples. That to the east (Structure 32) has before its stairway three stelae and originally three altars, one stela standing a little in advance of the others. Two of the monoliths (Nos. 6 and 7) and the only altar noted (IV) are sculptured (see Fig. 31). The second temple (Structure 33), the largest of the four, has six stelae and altars, again one standing a little ahead of the other five. One of these (No. 5) and two of the altars (II and III) are decorated. The third building (Structure 34) has four stelae and originally four altars. Two of these (Nos. 3 and 4) and one of the altars (I) are sculptured. The fourth temple (Structure 35) has no stelae or altars.

On the western side of the Plaza, as before stated, stands Temple II, fully described by Maler (No. 1, Figs. 4, 5). Before it an altar was noted with no accompanying stela.

5. Northern Acropolis (Maler's "Lesser Acropolis"). The Northern Acropolis, as the case with the other two, was at one time a natural hill which has been levelled off and terraced. The top is reached by an ascent between Structures 33 and 34. It is on this Acropolis that we find an excellent example of a symmetrical arrangement of buildings. The Central Acropolis seems to have been primarily for residence, whereas here the greater part of the buildings are of the temple type. Directly behind Structure 33 is a small sunken court on which Structure 36 faces. This temple is interesting mainly from the fact of the two stelae (Nos. 1 and 2) found before it.

At either side of this building, on the general level of the top of the height, are two low mounds evidently at one time buildings. Behind the temple of the two stelae there is a court on which face three temples (Structures 37-39) of the typical Tikal form. The largest one, on the north, has an exceptionally wide stairway projecting some distance into the court. There is also a building (Structures 41 and 42) to the north of each of the two side temples of this group. These face the northern ravine and seem to show features of the domiciliary type. There remains to be mentioned a mound on the eastern edge of the height. This faces the east, and has a stairway leading down to the terrace on which Structures 28-31 stand. Plate 30,

the cross-section of the city, shows the most important buildings on this Acropolis.

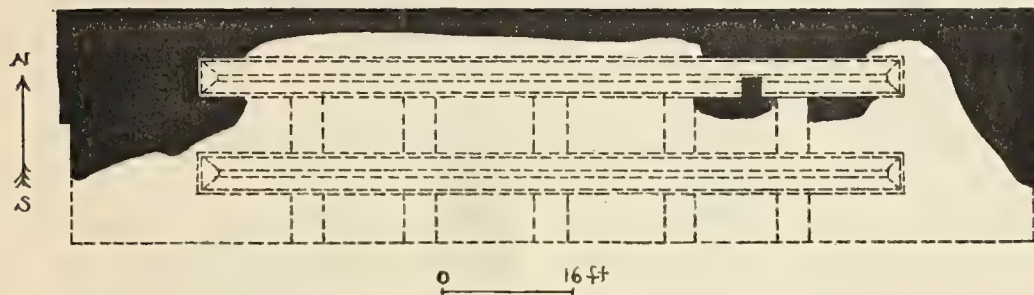


FIG. 32.—TIKAL: Plan of Structure 42.

To the west and north of the Acropolis on a lower level there is an interesting edifice with two galleries, Structure 42, Fig. 32 (Maler's "Palace of the Two Galleries"). Near the southwestern corner of this building there are the remains of four stelae and three altars. One of the stelae (No. 15) shows traces of having been sculptured.

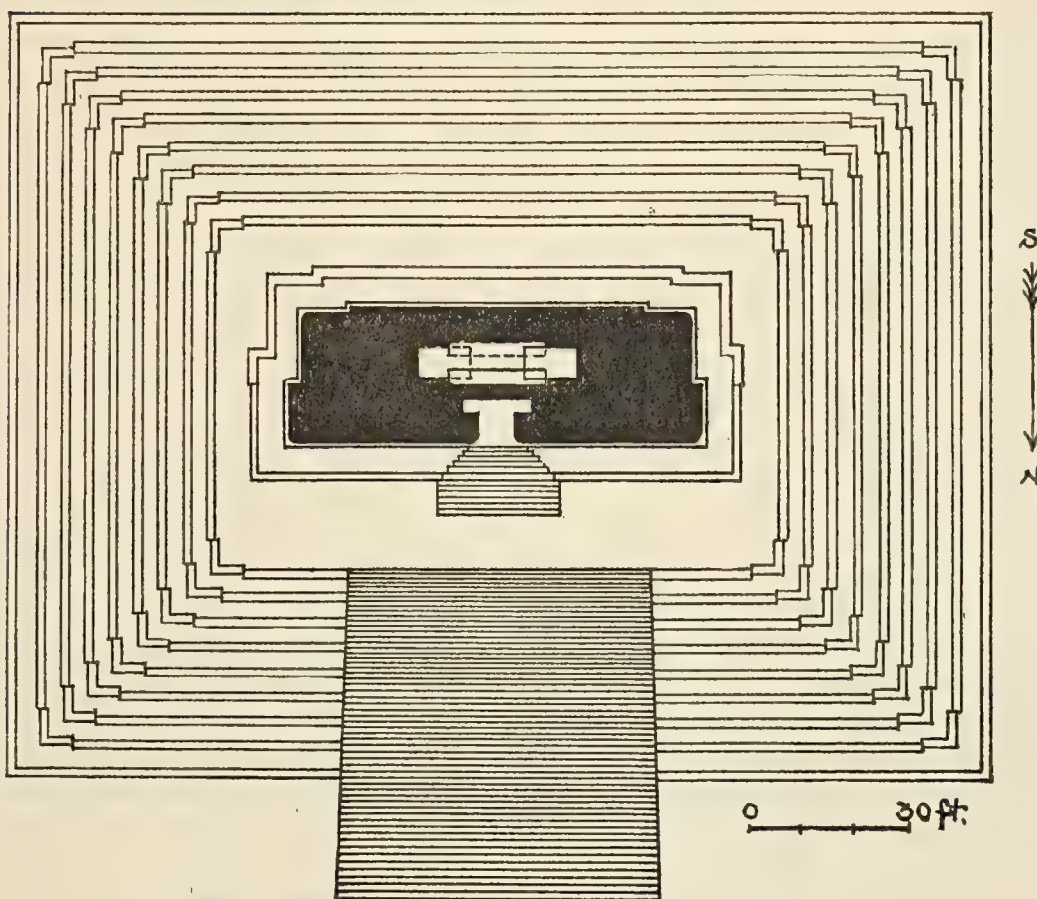


FIG. 33.—TIKAL: Plan of Temple V showing the rooms in the roof-comb.

This completes the description of the central portion of the site. Temples III and IV, with the surrounding buildings and the large western section of the city, will be taken up in connection with the remains in the south.

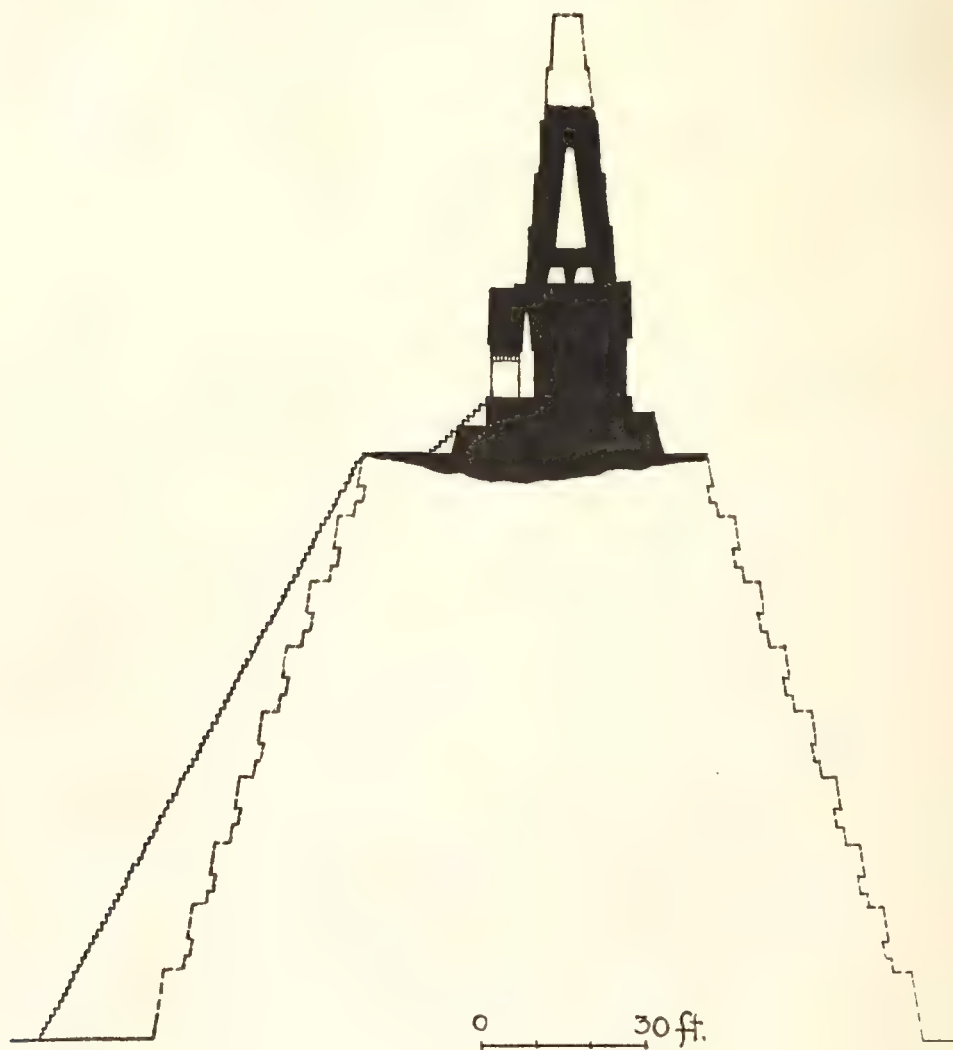


FIG 34.—TIKAL: Cross-section of Temple V showing the rooms in the roof-comb.

6. **Southern Acropolis and Temple V.** It seems best to return in our description to the raised way connecting the southern and northern sides of the southern ravine. By continuing west on the southern side Temple V (Figs. 33, 34) is reached. This is perhaps the most interesting of the five great Tikal temples. The interior rooms in the roof-comb of this structure have already been described in the general consideration of the construction of the Tikal temples (p. 100).

To the east of the great mound on which Temple V stands there is a small building (Structure 43) of the residential type.

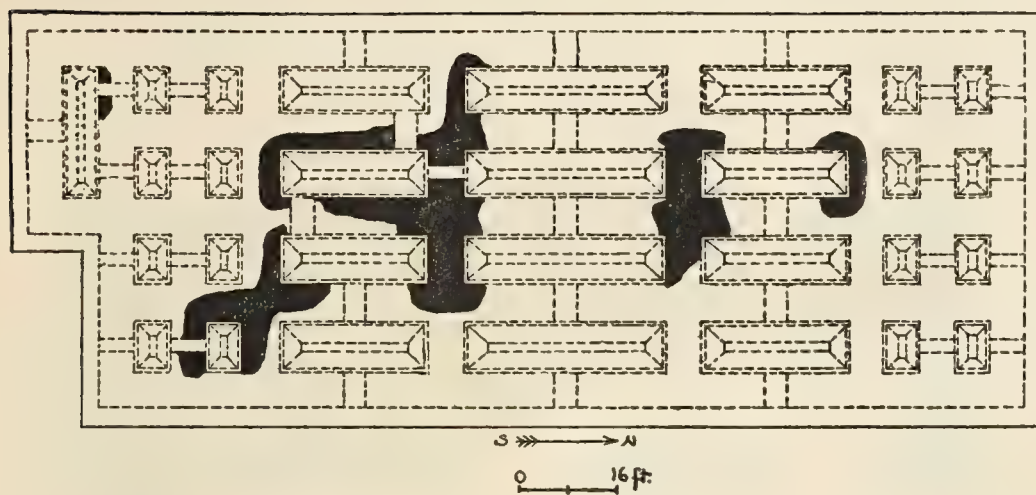


FIG. 35. — TIKAL: Plan of Structure 51.

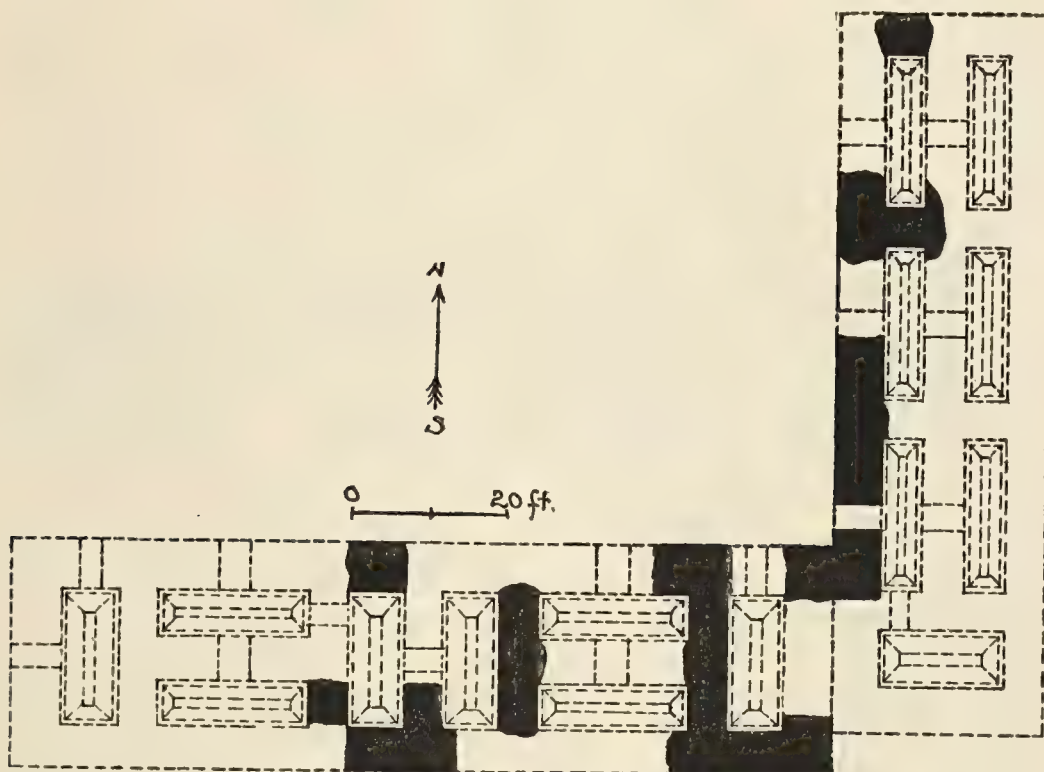


FIG. 36. — TIKAL: Plan of Structures 44 and 47.

Just to the west of Temple V rise the terraces of an artificially levelled hill which we have called the Southern Acropolis (Maler's "Lesser Acropolis West of Great Temple V"). It is smaller in extent than the other two and contains buildings of both types. In the centre is a temple (Structure 48) facing east, and closely surrounding it on the four sides are Structures 44, 47,

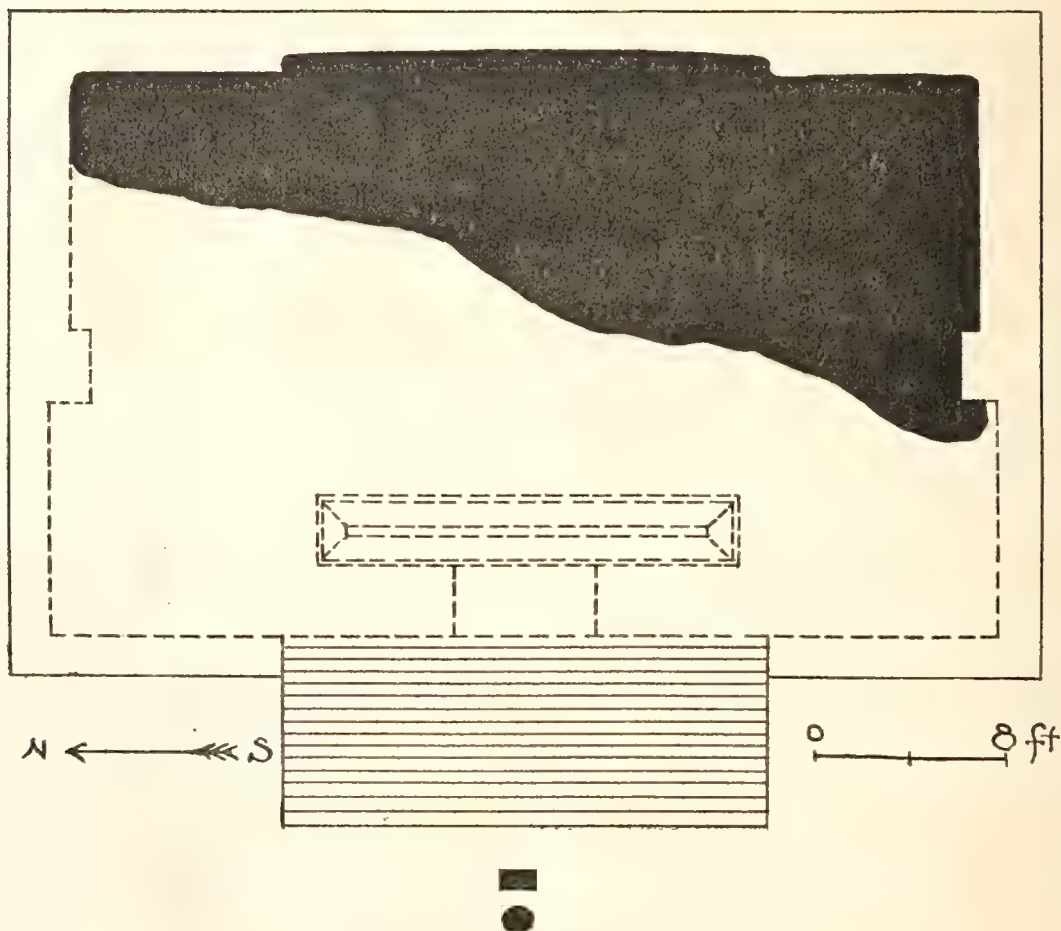


FIG. 37. — TIKAL: Plan of Structure 55.

49, 51. That to the west (Structure 51, Fig. 35) is the most important and stands on a foundation platform of its own. The buildings to the east and south are joined at the corners (Structures 44 and 47, Fig. 36). It is difficult to determine with exactness the plan of the rooms in this corner. The plan given here differs from Maler's description. There are three more or less detached buildings (Structures 45, 46, and 50) on the eastern side of the height. Nos. 45 and 50 are on a terrace slightly lower than the general level.

7. Southwestern Section. Just to the west of the Southern Acropolis upon a terrace and facing a large plaza to the west are seven temples (Structures 52-58), all of the Tikal type and varying very little in size. The central

one (Structure 55, Fig. 37), Maler's "Central Temple of the Row of Seven," has before its stairway an unsculptured stela and altar. The southernmost of these temples (Structure 58) shows evidence of a room in the roof-comb. On the southern side of the plaza are three buildings of the residential type.

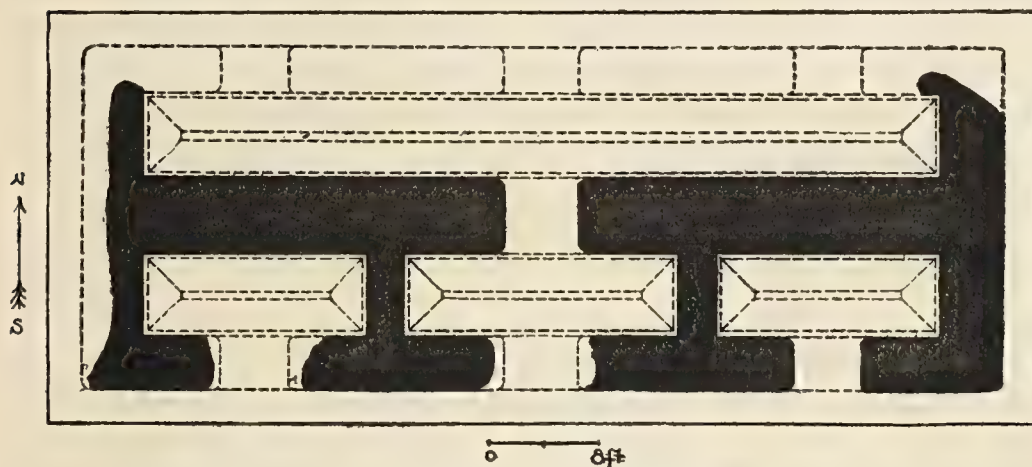


FIG. 38. — TIKAL: Plan of Structure 59.

The two first (Structures 59, 60) are very well preserved, and their plans (Figs. 38, 39) can be exactly determined (Maler's "First and Middle Palace on the Southern Side of the Square of the Seven Temples"). Fig. 40 shows the cross-section of Structure 60 with the stepped arrangement of the vaulting.

The north side of the square is enclosed by two parallel mounds running

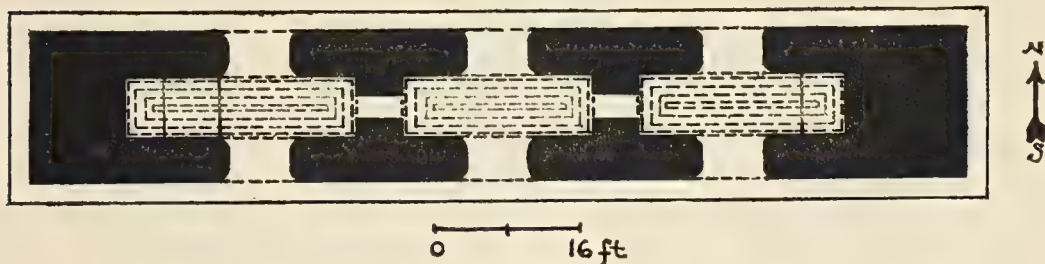


FIG. 39. — TIKAL: Plan of Structure 60.

north and south. The western side has a row of three temples (Structures 62-64) which do not face the east or the court just mentioned, but the west, on a second and larger plaza. Each of these is a typical three-room building standing on its own foundation pyramid. To the north in line with this row of three temples is a mound (Structure 61) of varying width showing the remains of walls. To the south and still in the same line is a long mound, a part of which also shows traces of buildings. At right angles to this and forming the southern side of the plaza is a long mound stretching to the west,

of varying height, broken by a gateway near its western extremity. The mound turns and continues northward, thus forming the western side of the same plaza.

Near the centre of the court is a large mound which Maler calls a "sepulchral pyramid" (Structure 66). He notes (No. 1, p. 55) that it is the largest of its kind in the ruins. It is about 170 feet at the base on its southern side. To the north and west there is a small and unimportant mound and also a pyramid temple (Structure 67) with three chambers,

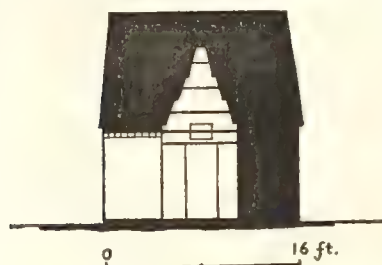


FIG. 40. — TIKAL: Cross-section of Structure 60.

not two as noted by Maler (p. 55). Near this to the north and east is a building (Structure 68) running east and west with wings on the northern side. Remains of rooms can easily be made out. A little to the east is still another temple (Structure 65).

8. Northwestern Section. By going directly north from the part of the city just described and crossing a shallow ravine one arrives at the Northwestern Section of the site, or by continuing to the east and following the

rim of the southern ravine one reaches Temple II and the Central Acropolis.

The southernmost ruin in the Northwestern Section is Structure 69 (Maler's "Palace of the Two Stories and twenty-one Chambers in the Rear of Great Temple III," Fig. 6). This excellently preserved edifice is well worthy of extended study, as it shows the best example of a building of the residential type at Tikal. Unfortunately the second story, as is almost always the case, is badly ruined.

The court to the east of this building is bounded on the north and south by mounds, evidently once the foundation of buildings at least two rooms in width. To the north stretches a terrace as far as Structure 73 (Maler's "Sacerdotal Palace Belonging to Great Temple IV"). This faces the west and Temple IV.

To the east of the line made by Structures 69 and 73 lies Temple III (Figs. 41, 42). It has two chambers in place of the usual three. The roof-comb is represented as solid, but by analogy it might be assumed that there are interior chambers, as in Temple V.

The middle palace of the line of three palaces mentioned by Maler (No. 1, p. 40) could not be located. He may refer to the low mounds just to the east of Temple IV.

Continuing to the west from the point of departure (Structure 69) Structures 70 and 71 are soon reached. Both face the west, and are connected by a low mound forming a court on the south. The six large stelae in front of the first of these temples are by no means symmetrically placed in reference to the central stairway. To the north of the western of the two

temples lies the secluded court, 26' $\times$ 32' (Structure 72, Fig. 43) in which Maler made his remarkable find, the beautifully sculptured Altar V buried in front of an equally finely carved stela (No. 16). The interesting series of

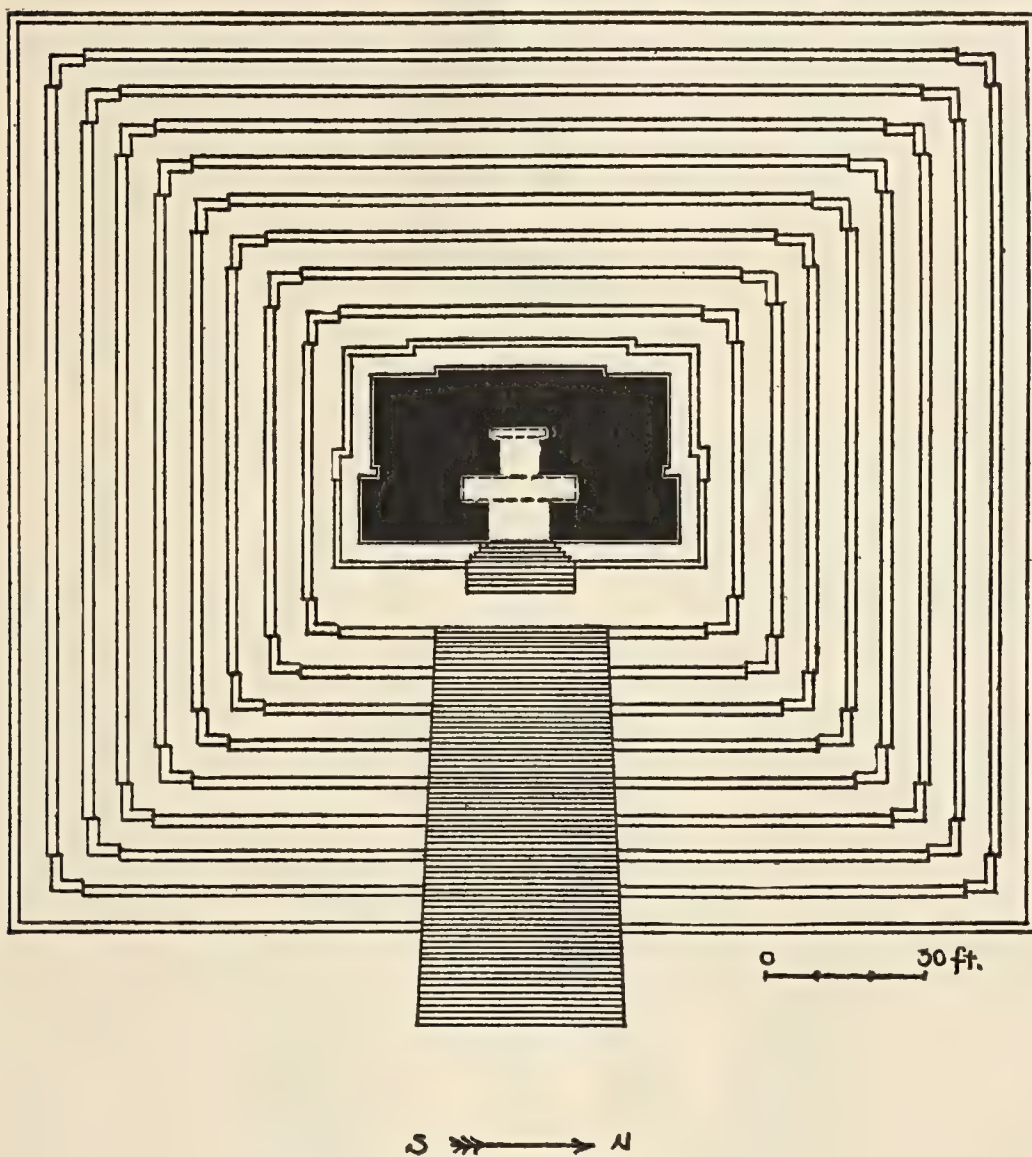


FIG. 41. — TIKAL: Plan of Temple III.

dates on the inscription around the top of this altar have already been discussed (p. 104).

Still continuing to the north and west Temple IV (Figs. 44, 45) is reached with its single unsculptured stela and altar. The foundation mound of this temple is the largest of the five.

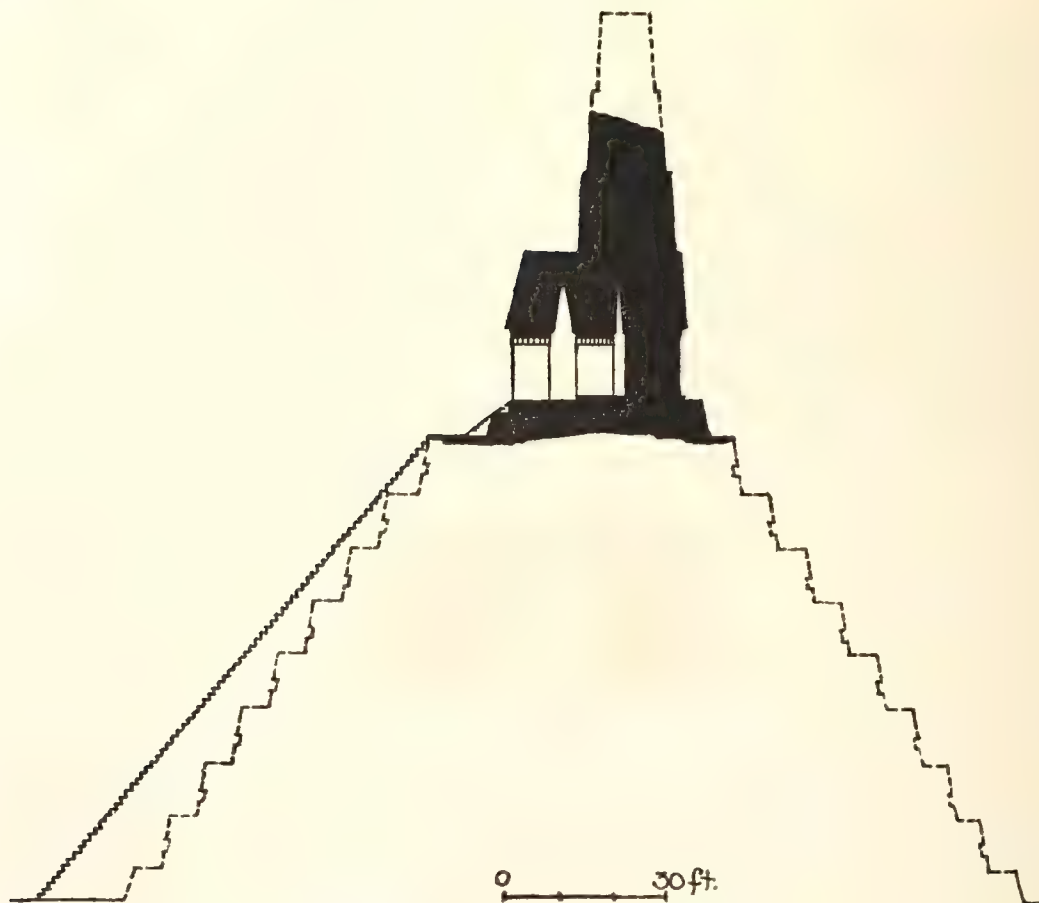


FIG. 42. — TIKAL: Cross-section of Temple III.

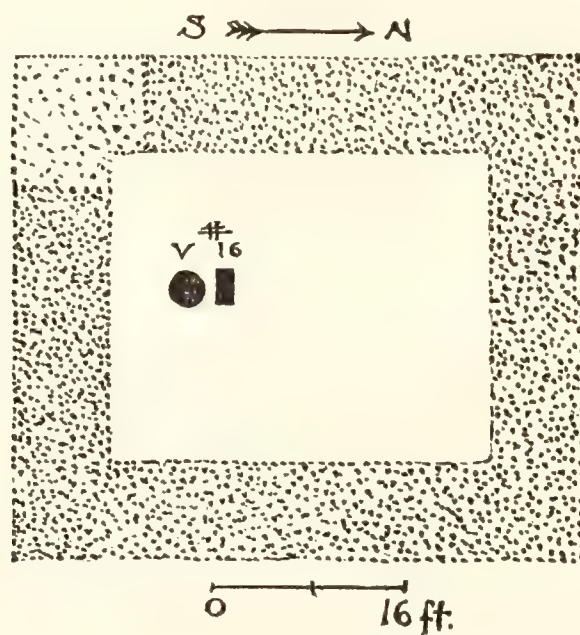


FIG. 43. — TIKAL: Court 72 showing the position of Stela 16 and Altar V discovered by Maler.

9. **Northern City.** Mention has already been made of the northern ravine running behind the Northern Acropolis and the mounds to the eastward. By crossing this depression to the north and west of Structure 42 one comes upon the westernmost building of the Northern City, clearly a suburb

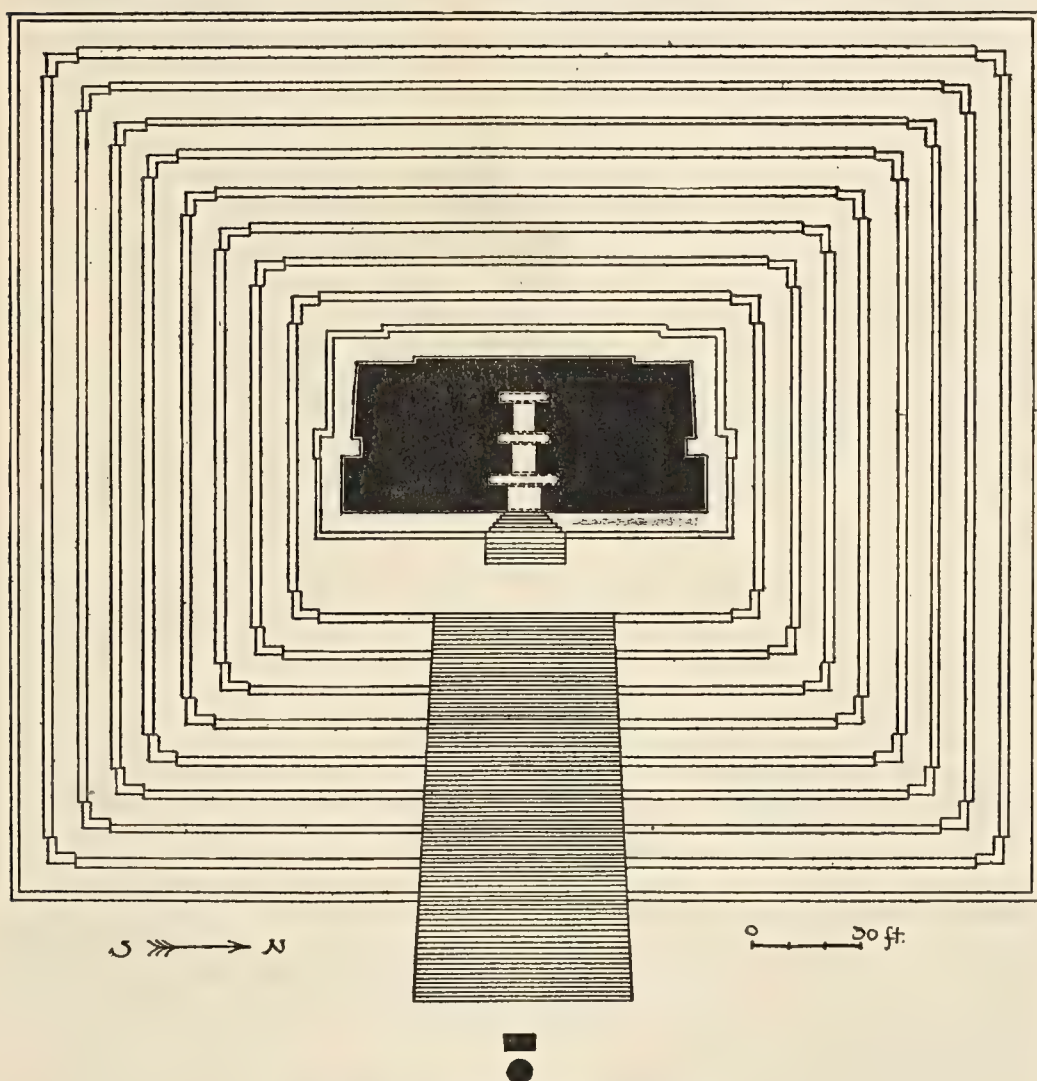


FIG. 44. — TIKAL: Plan of Temple IV.

of the main settlement. This section is built upon a ridge running east and west, terraced down to the ravine on the south and with the land also falling away again to the north.

The court still remains the principal element in the plan. The western building in this part of Tikal is Structure 89, the plan of which may be made out (Fig. 46). It is a residential building, and faces east upon a court bounded on the north by a low mound, on the east by Structure 88, also domiciliary

and probably containing five rooms with an addition on the southwest corner, and on the south by the line of the terrace. To the east and slightly to the south of this group is another square, on the west side of which is a temple (Structure 87) facing east. Opposite this and turned toward the same plaza is a second temple (Structure 85), before which are four stelae and altars

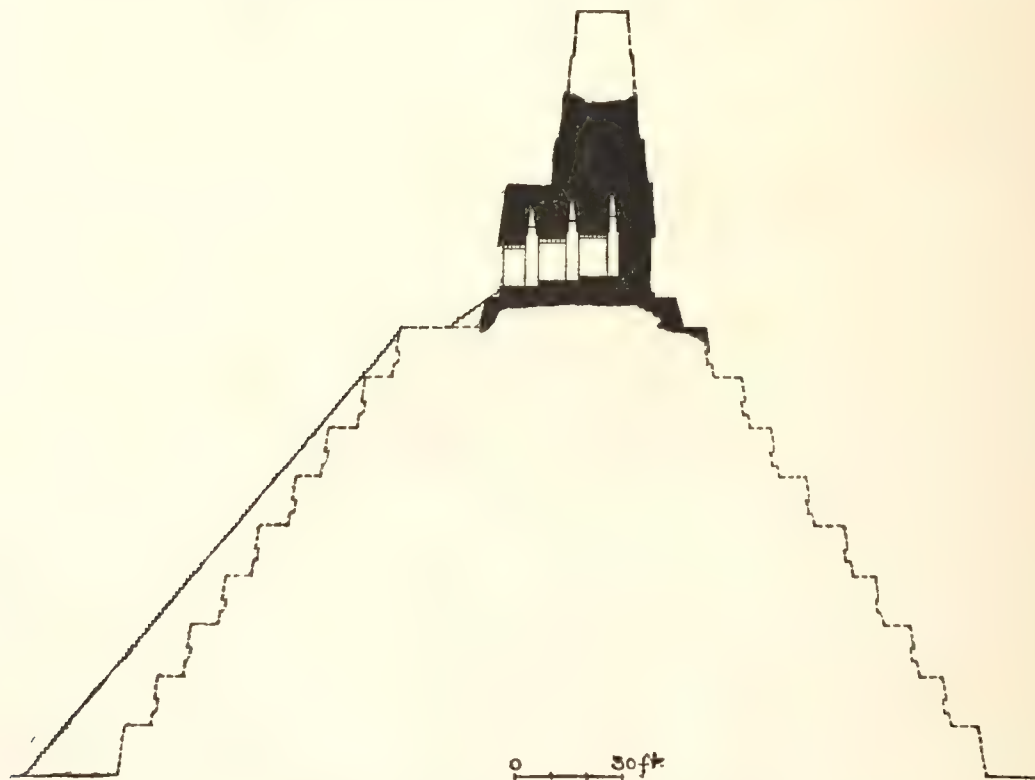


FIG. 45. — TIKAL: Cross-section of Temple IV.

placed to the north of the stairway. The square is closed on the north by a secluded mound enclosure (Structure 86) similar to the one containing Stela 16 and Altar IV. As in the latter an altar and stela were found, this time however unsculptured. The southern side of the larger court has a low mound bordering the terrace.

Behind Structure 85 to the east and at a lower level stand the remains of several domiciliary buildings (Structures 83 and 84) the plans of which may be made out by the varying heights of the heaps of *débris*. Still at a slightly lower level there stretches to the east a line of four "sepulchral pyramids" (Structures 82, 80, 79, and 78). To the north of the space between the first and second there is the third of the little secluded courts (Structure 81) this time surrounded by a well-preserved wall. A sculptured altar (VI) but no stela was found within.

The second sepulchral pyramid (Structure 80) has before it on the west four plain stelae with their altars, and a fifth altar with no stela. These

are not mentioned by Maler. The third pyramid (Structure 79) is very near the second. Further to the east lies the fourth (Structure 78), on the western face of which are eight stelae and altars in a row, with a ninth stela and altar slightly in advance of the others.

From the eastern part of the Northern City it is possible by going in a southeasterly direction to reach a more or less independent quadrangle of some importance. All four buildings are of the residential type. The

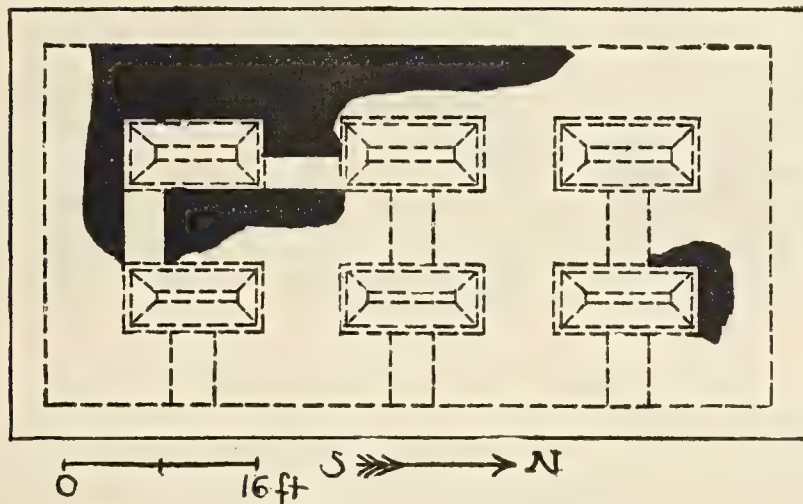


FIG. 46. — TIKAL: Plan of Structure 89.

northern building (Structure 77, Maler's "Palace of the Twenty Chambers," Fig. 7) and southern building (Structure 74, Fig. 47) are well preserved, and plans may be made of both. There remains finally to be mentioned the eastern and western edifices (Structures 75 and 76) of this quadrangle, each of which contains a single row of apartments.

RELATIVE AGE OF TIKAL.

The supreme importance of the ruins of Tikal has already been made clear, it is hoped, from the description of the site. It is quite certain that the city was far more than a mere stopping-place in the northern migration of the Maya people from their southern habitat to the later settlements in northern Yucatan.

The hundreds of small mounds and chultunes stretching in lines from Tikal eastward and the large number of important sites in the vicinity show that this city was the centre of a large population. That this was very early in the history of the Maya civilization seems evident from a study of the few dates available from this place. The two distinct dates of Stelae 3 and 17, respectively 9.2.13.0.0 and 9.6.3.9.15, places Tikal among the very oldest of the Maya cities.

It is best to dispose of certain single dates occurring in sites where the great mass of the inscriptions from each city in question shows a consistent chronology beginning far later. These exceptionally early dates have usually been considered as in some way traditional. Yaxchilan has the date 9.0.19.2.4 (Lintel 22), but this is the only early one found in all those from the site. The others begin at 9.10.5.9.14 (Lintel 27) and run consistently onward to 9.18.9.12.1 (Stela 10). Quirigua has the date 9.1.0.0.0 (Stela C, east). This again is unique, and all the other dates from this site come far later, running from 9.14.13.4.17 (Stela E, west) to 9.19.13.0.12.

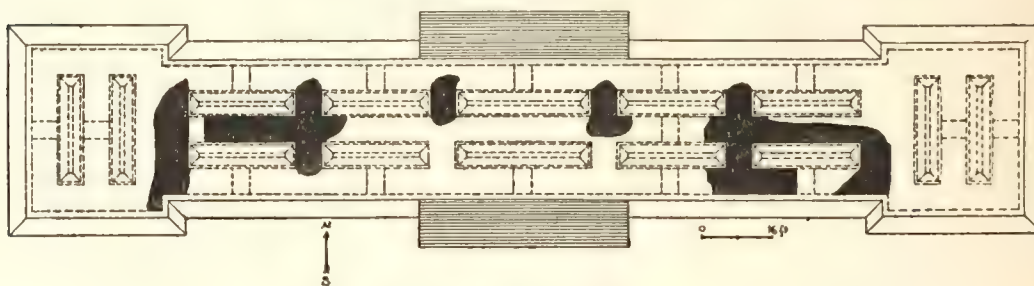


FIG. 47. TIKAL: Plan of Structure 74.

Tikal, unlike the two sites just considered, has more than one early date, and they outnumber the later ones. With the exception of the single dates from Yaxchilan and Quirigua and the dates of the Temple of the Cross, the Temple of the Sun, and the Temple of the Foliated Cross at Palenque,¹ the 9.2.13.0.0 of Stela 3 and the 9.3.6 (or 11).2.0 of Stela 10 of Tikal are earlier than any other recognized dates on the stelae from the Maya ruins.² The Palenque date of 9.4.0.0.0 comes next, followed by the 9.6.3.9.15 of Stela 17 of Tikal, 9.6.10.0.0 of Stela 9 of Copan, and 9.7.14.10.8 of Naranjo (Slab 8), the date reached by reckoning backward the distance number 2.5.7.12 from 1 Ahau 8 Kayab ①, the beginning of Katun 10, all of which are expressed. Later would be placed the 9.8.10.6.16 of Stela 25 of Piedras Negras and the 9.10.5.9.14 of Lintel 27, the first of the regular dates from Yaxchilan.

It is of course dangerous to attempt a chronological disposition of the various ruins from the comparatively few dates which we have from certain sites. There is little doubt that inscriptions will be brought to light in later investigations, and these may serve to fill in gaps in our chronology, or they may, on the other hand, push the earliest date of a site backward and the latest date forward, thus demolishing the relative chronology of the various centres.

From a study of the early dates now available it may be seen that

¹ Bowditch (1906 and 1910) has described these and similar dates.

² It is interesting to note that the Leyden Plate with the very early date of 8.14.3.1.12, 1 Eb (0 Yaxkin) was presumably found in the same general region as Tikal "on the Rio Graciosa (?) in the vicinity of San Filippo (?) on the border of British Honduras and Guatemala." (Seler, 1900.)

Tikal occupies the first position in point of time of all the ruins of the Maya area. We are not now prepared to show that the Tikal territory was the centre from which spread the influence responsible for the culture of Copan and Palenque, but that the city was as early as these two other Maya sites seems evident from a study not only of the dates but also the types of sculpture on the stelae. Naranjo, also in the same general region, was only about one hundred years after Tikal.

From the evidently later character of certain of the stelae of Tikal, together with the single date of Stela 5, west, of 9.15.13.0.0, and from the fact that the greater part of the dates from Naranjo are in Katuns 17 and 18, it may be reasoned not only that the region of which Tikal was the centre was one beginning very early in the life of the Maya civilization, but also that it continued to hold its important position until well toward the end of the time when the southern Maya culture resigned its position of preëminence to that part of the Maya people living far to the northward.

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III

II

IV

TIKAL: VIEW FROM TEMPLE I, LOOKING WEST, SHOWING TEMPLES II, III, AND IV.



TIKAL: TEMPLE II, LOOKING SOUTHWEST.



TIKAL: TEMPLE III, LOOKING NORTHWEST.



TIKAL: TEMPLE V, LOOKING SOUTHEAST.



1, TIKAL: PALACE OF FIVE STORIES: THIRD STORY, WEST EXTENSION, VIEW OF FRIEZE.



2, TIKAL: STRUCTURE OF THREE STORIES WITH THREE CHAMBERS IN UPPER STORY, REAR SIDE.



1. TIKAL: PALACE OF FIVE STORIES: NORTH SIDE OF THIRD, FOURTH AND FIFTH STORIES.



2. TIKAL: CENTRAL TEMPLE OF A ROW OF SEVEN TEMPLES, EAST (REAR) SIDE.



1, TIKAL: PALACE OF TWO STORIES OPPOSITE TEMPLE V; NORTH FAÇADE
AND ENTRANCE TO MIDDLE CHAMBER.



2, TIKAL: DIAGONAL VIEW OF ONE OF FOUR SMALL TEMPLES AT NORTHERN SIDE OF PRINCIPAL SQUARE.



1, TIKAL: PALACE OF TWO STORIES OPPOSITE TEMPLE V;
MIDDLE NORTH CHAMBER OF FIRST STORY.



2. TIKAL: PALACE OF FIVE STORIES; REAR GALLERY
OF FOURTH STORY, LOOKING EAST.



1, TIKAL: PALACE OF TWO STORIES AND TWENTY-ONE CHAMBERS; SOUTHERN CHAMBER OF REAR ROW OF CHAMBERS, FIRST STORY.



2, TIKAL: INTERIOR OF MIDDLE PALACE FORMERLY OF ONE APARTMENT AND LATER DIVIDED INTO THREE ROOMS.



TIKAL: STELA 1, NORTH SIDE.



1, STELA 3, WEST SIDE.



2, STELA 3, SOUTH SIDE.



3, STELA 3, EAST SIDE.

TIKAL.



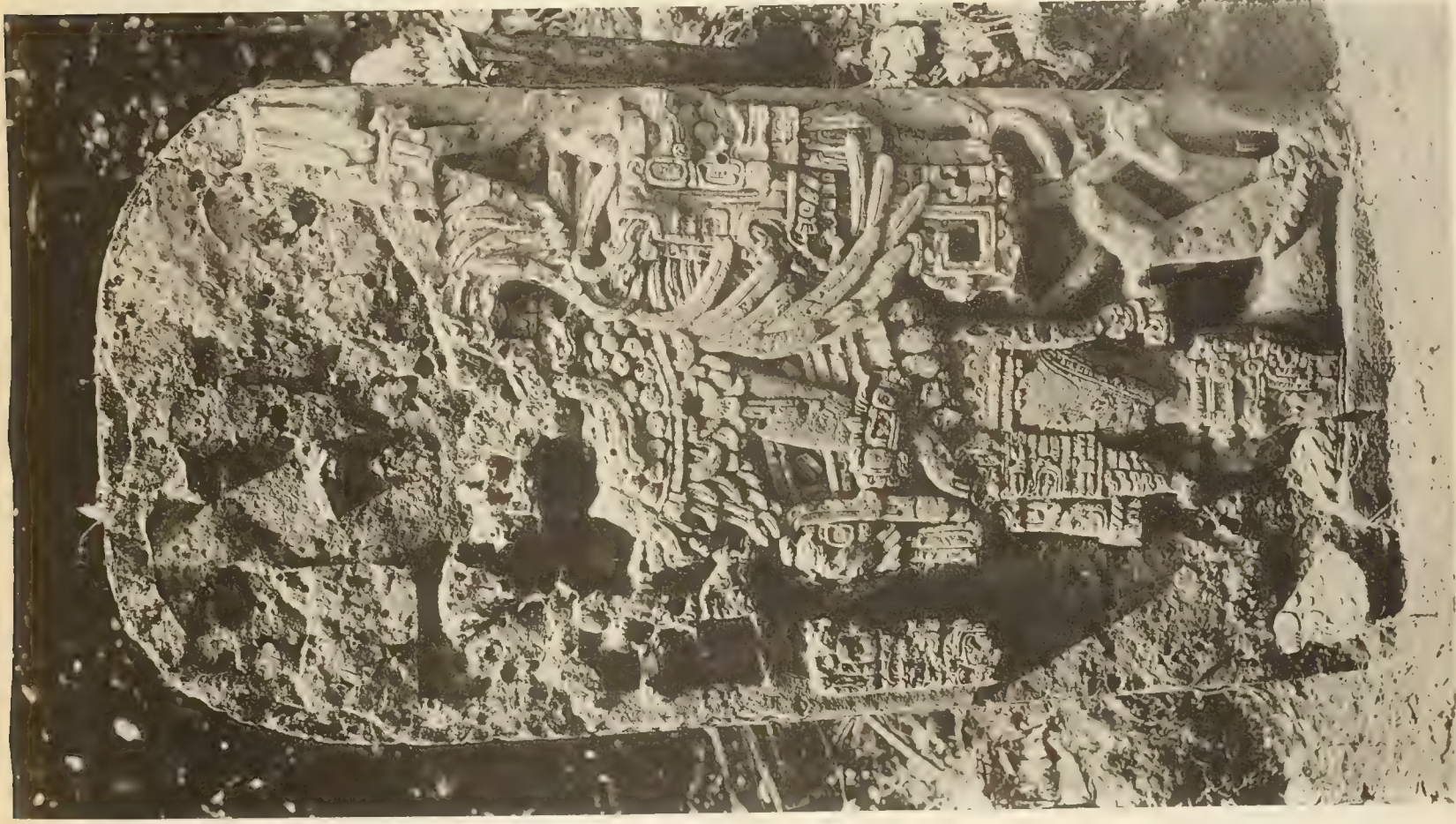
1, TIKAL: STELA 4, NORTH SIDE.



2, TIKAL: STELA 4, SOUTH SIDE.



1, STELA 5, WEST SIDE.



2, STELA 5, SOUTH SIDE.

TIKAL.



3, STELA 5, EAST SIDE.



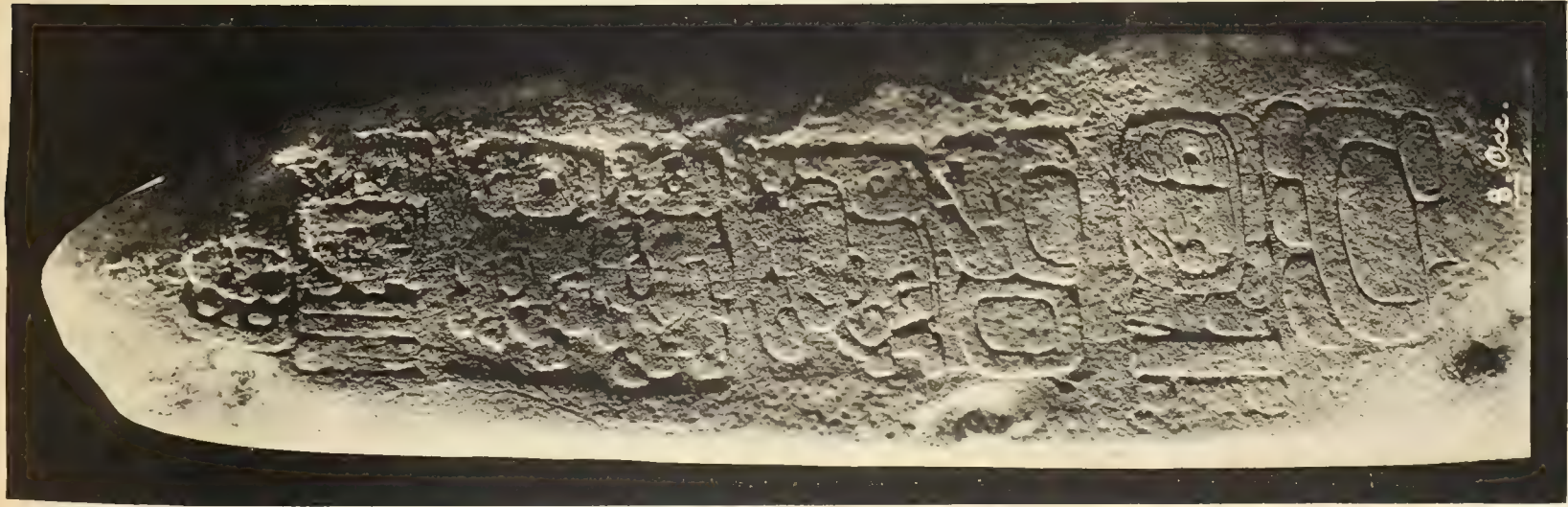
1

1. TIKAL: STELA 7, SOUTH SIDE.

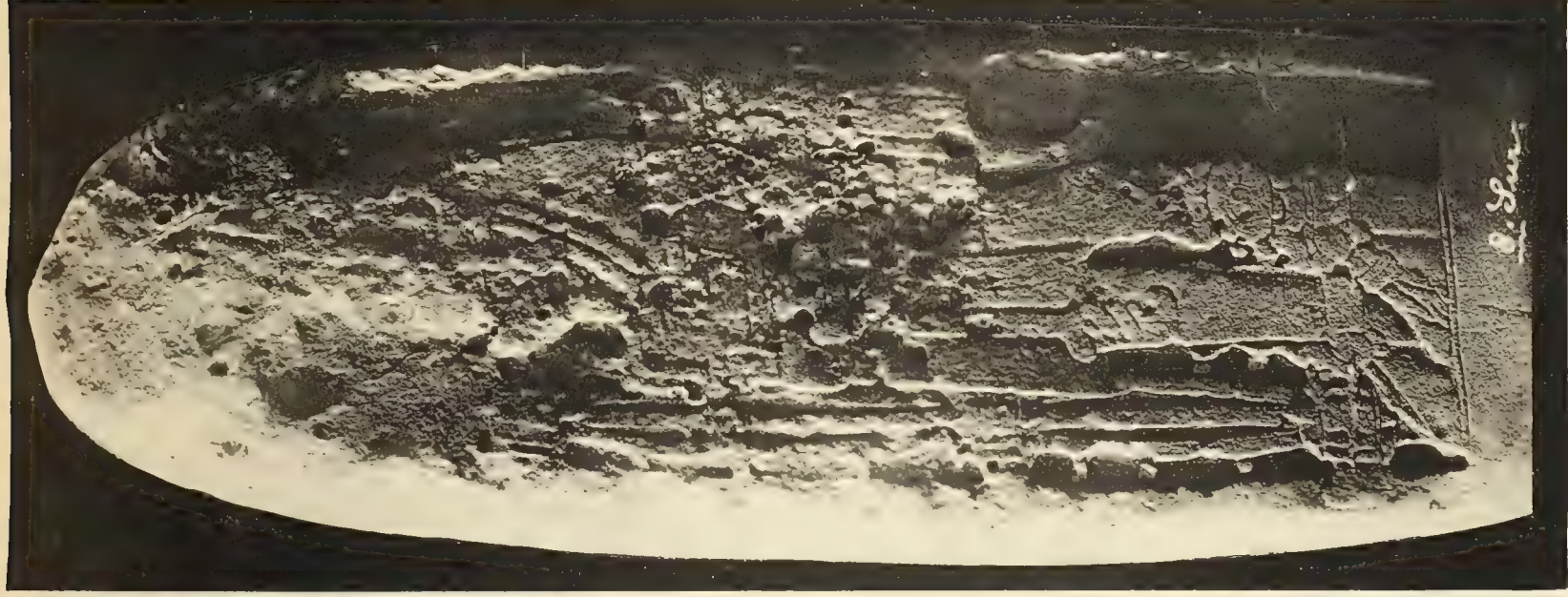


2

2. TIKAL: FRAGMENTS OF CARVED BEAMS FROM LINTEL
OF DOORWAY LEADING TO SECOND CHAMBER OF TEMPLE II.



1, STELA S, WEST SIDE.



2, STELA S, SOUTH SIDE.

TIKAL.



3, STELA S, EAST SIDE.

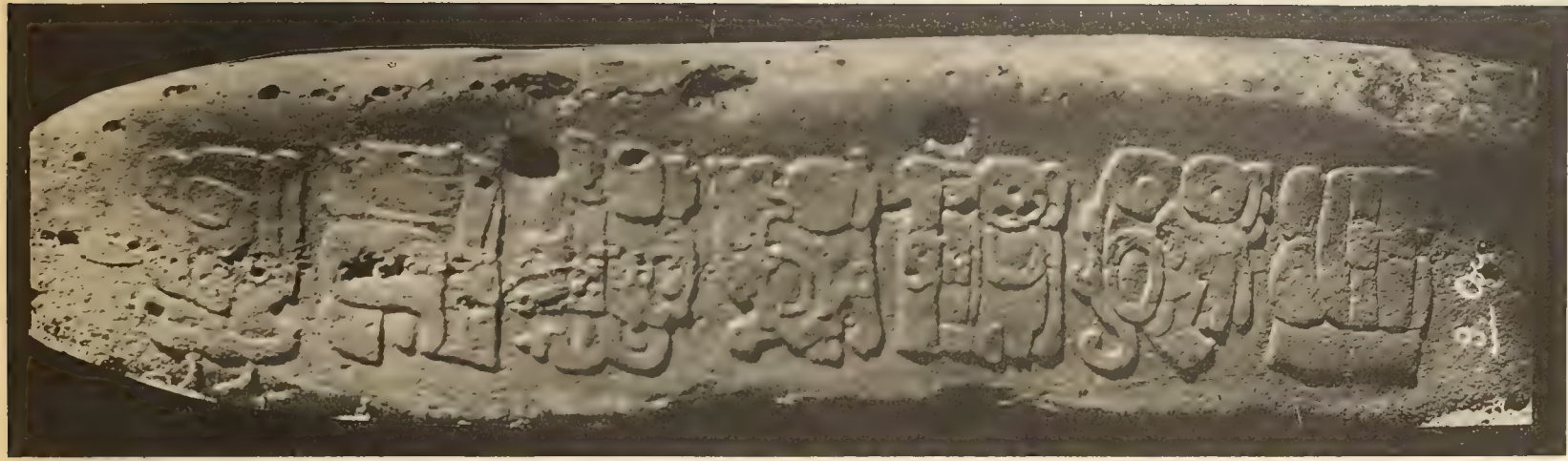


1, STELA 9, WEST SIDE.



2, STELA 9, SOUTH SIDE.

TIKAL.



3, STELA 9, EAST SIDE.



1, STELA 10, WEST SIDE.



2, STELA 10, SOUTH SIDE.

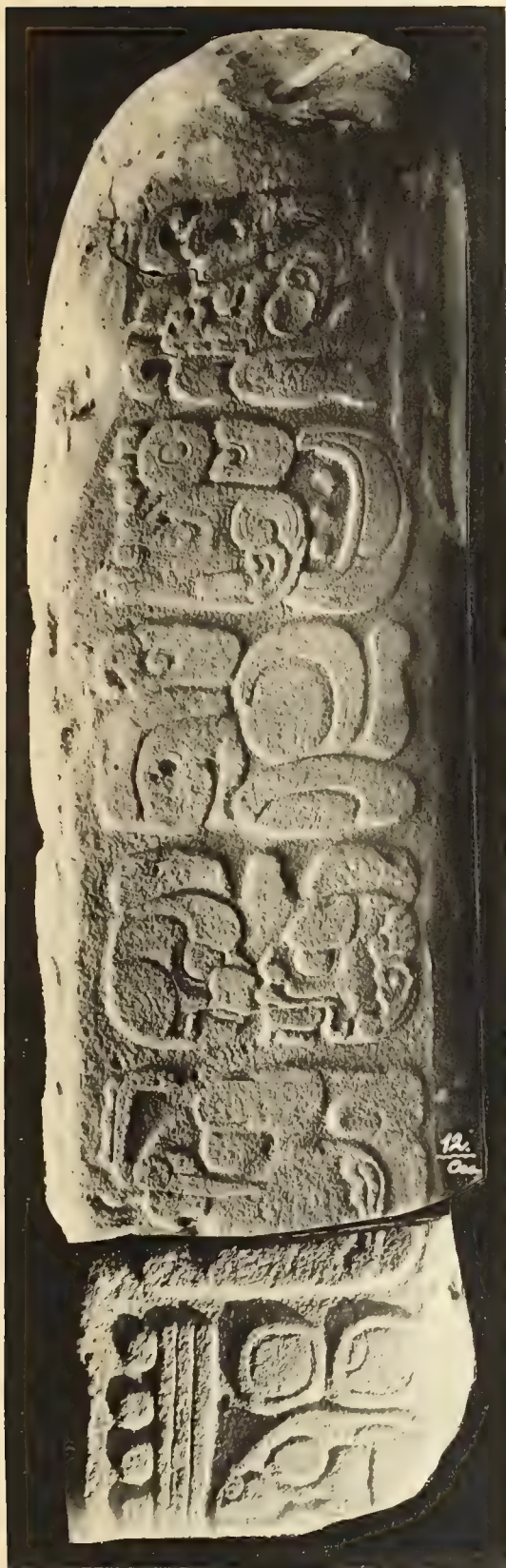
TIKAL.



3, STELA 10, EAST SIDE.



TIKAL: STELA II, SOUTH SIDE.



1. TIKAL: STELA 12, WEST SIDE.



2. TIKAL: STELA 12, NORTH SIDE.



1. TIKAL: STELA 12, SOUTH SIDE.



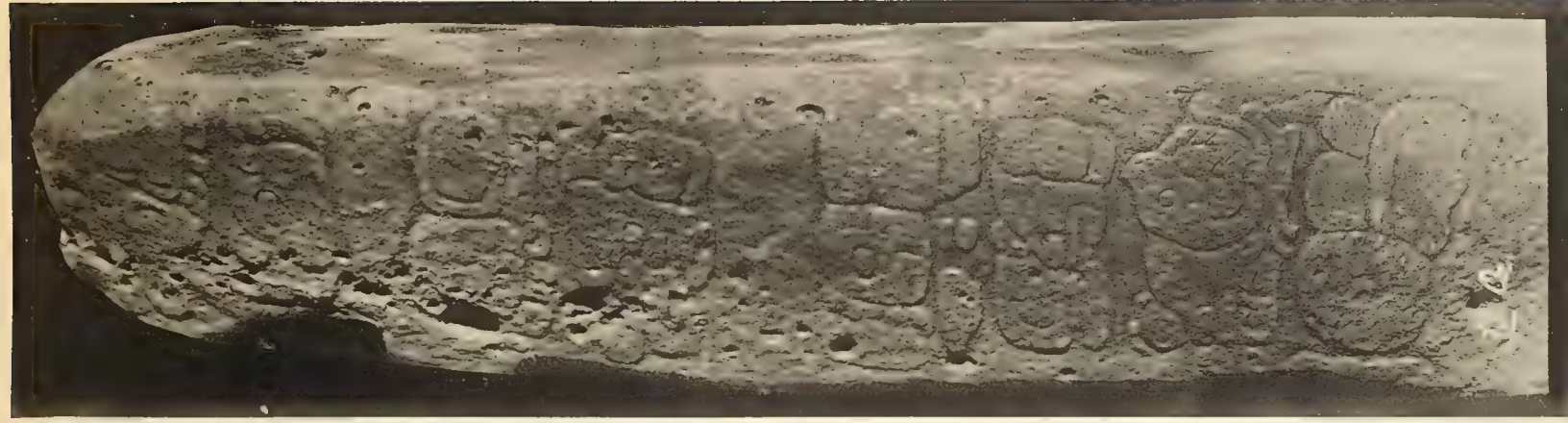
2. TIKAL: STELA 12, EAST SIDE.



1, STELA 13, WEST SIDE.



2, STELA 13, SOUTH SIDE.

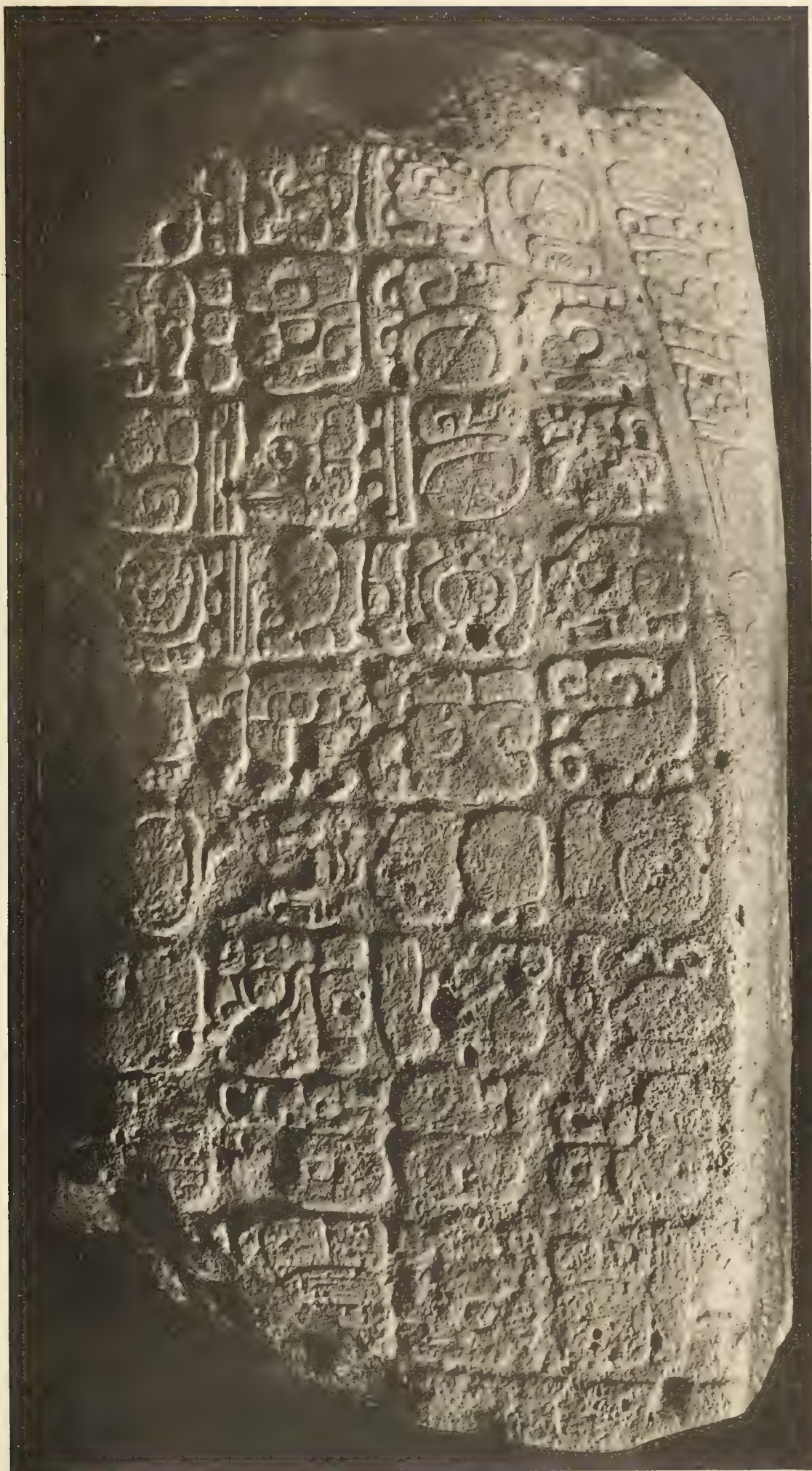


3, STELA 13, EAST SIDE.

TIKAL.



TIKAL: STELA 16, SOUTH SIDE.



TIKAL: STELA 17, SOUTH SIDE.



TIKAL: ALTAR 5.

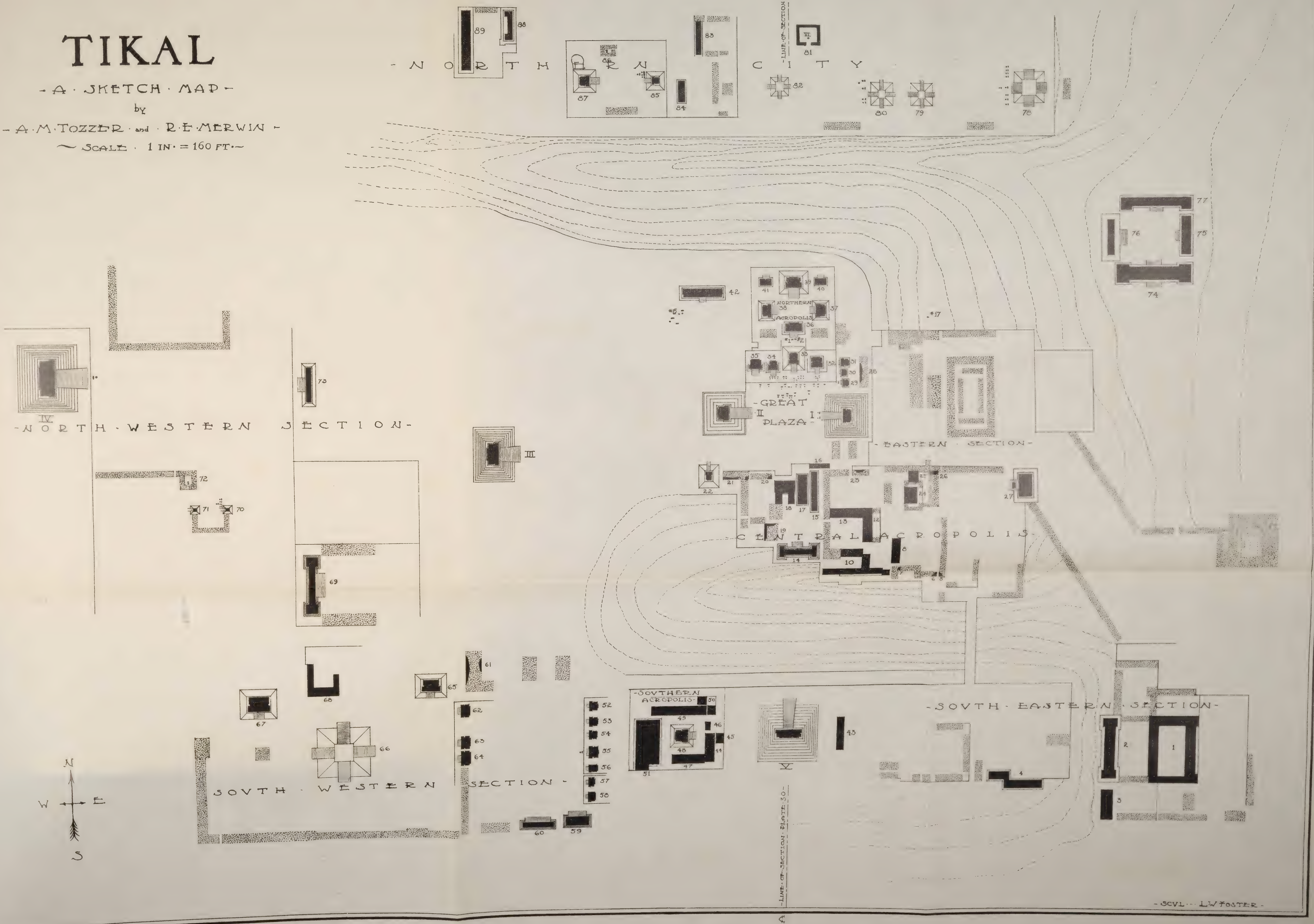
TIKAL

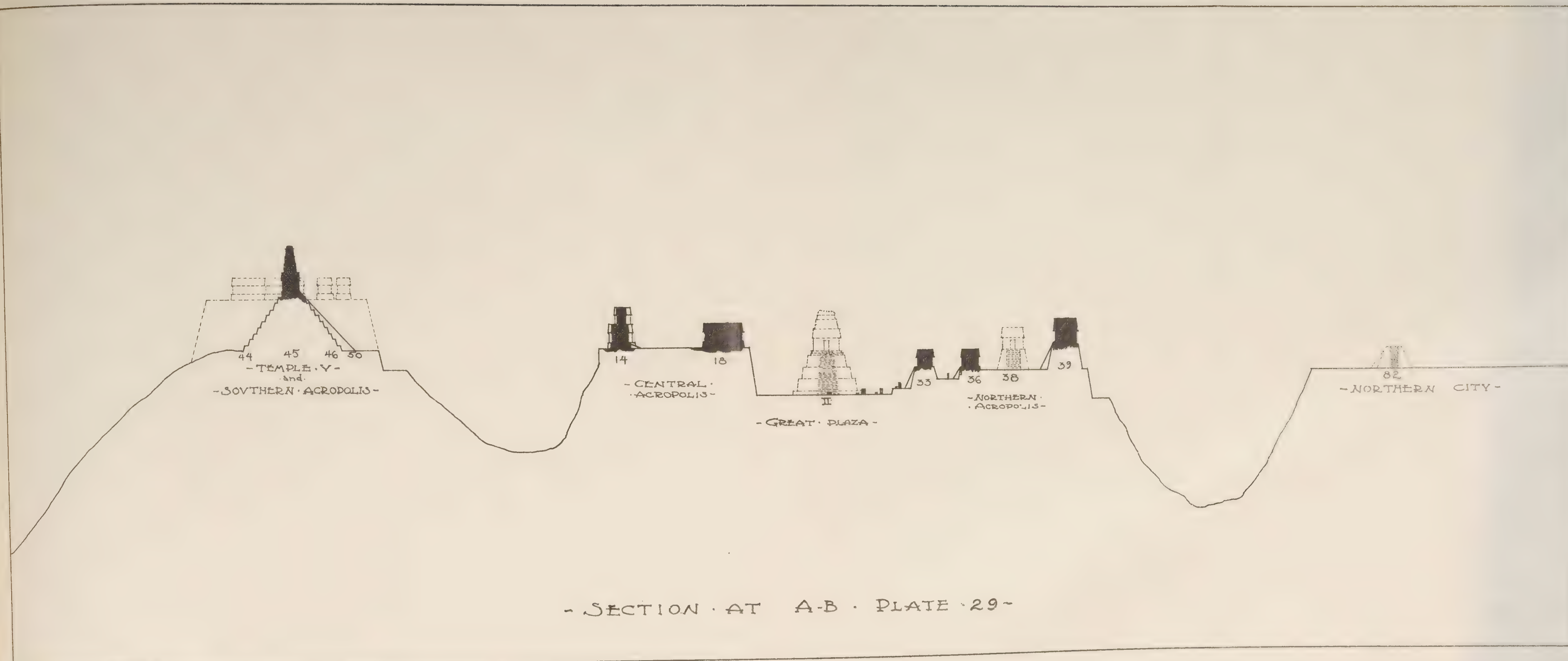
- A SKETCH MAP -

by

- A. M. TOZZER and R. E. MERWIN -

~ SCALE: 1 IN. = 160 FT. ~





TIKAL: CROSS-SECTION, SHOWING NORTHERN CITY, NORTHERN, CENTRAL, AND SOUTHERN ACROPOLES,
AND GREAT PLAZA. SCALE:— 1 INCH = 160 FEET.

1. 1871-1872

1. 1871-1872

2. 1873-1874

3. 1875-1876

MEMOIRS
OF THE
PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND
ETHNOLOGY, HARVARD UNIVERSITY

VOL. V—No. 3

A PRELIMINARY STUDY
OF
THE PREHISTORIC RUINS OF NAKUM
GUATEMALA

A REPORT OF THE PEABODY MUSEUM EXPEDITION
1909-1910

BY
ALFRED M. TOZZER

WITH FIFTY-FOUR ILLUSTRATIONS IN THE TEXT
AND TWENTY-THREE PLATES

CAMBRIDGE
PUBLISHED BY THE MUSEUM
1913

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EDITORIAL NOTE

IN accordance with the plan of the Peabody Museum Expeditions to Central America, Dr. Tozzer has in the present Memoir made the second report on the expedition under his charge during the season of 1909-10.

It has been the object of the Museum Expeditions, since their inception in 1888, to explore the whole Maya area of Mexico, Guatemala, Honduras and British Honduras in search of monuments and buildings bearing sculptures and hieroglyphic inscriptions with the hope of securing photographs and moulds before they are destroyed by natural disintegration, by fires when the natives clear the land for cultivation, and by pure vandalism. An instance of the latter occurred as recently as January, 1912, when two of the sculptured stelae of the prehistoric city of Copan were broken into small pieces for the purpose of making a foundation for an adobe wall about the cemetery of the modern village of Copan. Fortunately these stelae had been photographed and one of them had been moulded by a Peabody Museum Expedition.

Excavations, except where there is hope of finding fallen monuments, lintels and sculptured stones, have been slight, and the time of the explorers has been given to the search for ruins and the description of such as have been found preparatory to further examination and exploration in the future. During these expeditions several sites of ruined cities, not before known, have been discovered, and are being described in the Museum Memoirs, of which this number is the seventeenth.

Other reports are in progress, and further expeditions are planned with the hope of yet finding new sites and additional inscriptions which will throw more light upon the history of this highest and most remarkable stage of culture on the American Continent.

F. W. PUTNAM.

PEABODY MUSEUM OF HARVARD UNIVERSITY,
Cambridge, Mass., October 10, 1913.

PREFACE

THE Peabody Museum Expedition of 1909-1910,¹ like so many other expeditions to Central America of this Museum, is due to the generosity and to the interest of that friend of the Museum who has made possible more than all others combined the accumulation of knowledge of Central America and the Maya civilization.

The personal thanks and gratitude of the author of this report are due especially to Mr. Raymond E. Merwin, who accompanied him on this expedition. Mr. Merwin made all the surveys on which the map of Nakum is based and also took the photographs which accompany this report.

The expedition owes much to the interest expressed and the abundant and kindly hospitality of three Jesuit priests, Fathers Bennett and Versavel and the late Father Stanton. Father Stanton enriched the collections of the University Museum by a gift of zoölogical specimens of no little value. Father Stanton's life and work among the people of British Honduras will always be an inspiration to all who knew him.

To the genial *Jefe Politico* of the District of Peten, Guatemala, Señor Don Clodoveo Berges, and to Señor Don Manuel Otero of La Libertad, a friend of long standing, no little of the success of the expedition is due. Owing to the interest and generosity of the latter, opportunities were given to make a most interesting trip to the headwaters of the Salinas River.

There should be mentioned here as well as in the body of the report the obligations of the expedition to Count Maurice de Périgny, the discoverer of the ruins of Nakum. That which we were able to accomplish at the ruins was due in great part to the fact that Count Périgny had been there before us and had laboriously cleared the site of vegetation.

A. M. T.

PEABODY MUSEUM,
JULY 1, 1913.

¹ For a general report on the Expedition of 1909-1910, see Bibliography, Tozzer, 1912. For a study of the Ruins of Tikal, also a report of this expedition, see Tozzer, 1911.

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PREHISTORIC RUINS OF NAKUM, GUATEMALA

PETEN AREA.

FROM a study of the Maya remains as a whole several distinct areas can be distinguished, in each of which there is a certain kind of unity as regards assemblage, construction, and method of decoration. Northern Yucatan is clearly marked off from southern Yucatan. Mr. Merwin's and Mr. Hay's work in the latter region in 1911-1912 has shown that this, in turn, should be separated from the Peten district of northern Guatemala. The Usumacinta Valley ruins are, again, practically distinct from those of the Peten area. Finally, we should add the region of the highlands of the Pacific slope of Guatemala and that of southern Guatemala and of northern Honduras.

The Department of Peten in northern Guatemala together with the adjoining western part of British Honduras constitutes the most important centre of the Maya culture (Plate 31). With the exception of northern Yucatan no part of the Maya area contains a greater number of important ruined cities. From a study of the few dates on the hieroglyphic inscriptions from this region it seems more than probable that we have here the earliest remains of the Maya civilization, and it also seems clear that the culture remained at its height until well toward the time when northern Yucatan gained the supremacy in the Maya world. The arts of architecture, of stone-carving, and of pottery-making show as high a development as that reached in any other part of the Maya area and in many cases far exceed in interest corresponding features in the other regions. This is especially true in the field of ceramics, as will be shown by Mr. Merwin in his forthcoming report on Holmul.

Tikal is the most important of the sites in the Peten district.¹ Nakum undoubtedly comes second in point of size and from the point of view of architectural remains. Naranjo,² discovered by Maler in 1905, is most important on account of its sculptured stelae, although the buildings are entirely in ruins. La Honradez, Holmul, and Seibal 2d, all discovered by the Museum Expedition of 1909-1910,³ should also be classed as ruins of major importance. Mr. Merwin's exploration at Holmul in 1910-1911 shows that we have here the most important development of pottery yet found in the New World. Porvenir, Azucar, and Tšotškitam should be mentioned as ruins only slightly behind La Honradez, Holmul, and Seibal 2d in importance.

Many smaller sites appear on the sketch map (Plate 31). It may be noted that the ruins shown on the map are simply those met with along the trails connecting the larger sites. No doubt many more sites will be found

¹ See Maudslay, 1889-1902; Maler, 1911; and Tozzer, 1911. ² Maler, 1908. ³ Tozzer, 1912.

along the same paths on further investigation, to say nothing of the mounds in the intervening territory. These rough trails through the country follow in general the ridges, and there is little doubt that the ancient roads from city to city coincide in many cases with these modern trails of the *chichleros*.

The mounds noted on the map vary from low single structures to groups of four or five arranged around a court with others more or less detached. The large number of underground chambers or *chultunes* in the Peten area should also be noted.

The archaeological remains of the Peten area present various characteristics which mark this region off from all the other centres of the Maya culture. As already pointed out, it seems to be distinct from the region to the north embracing the southern part of the Territory of Quintana Roo and the eastern portion of the State of Campeche, Mexico.

The centre of interest in the general plan of most of the sites is a large plaza around which most of the stelae are placed. Adjoining this court on two or more sides is a system of connected quadrangles, the same building forming one side of each of two adjoining courts. Tikal, Nakum, Naranjo, and La Honradez thus present many points of similarity of plan.

The presence of stelae carved on two sides is a feature which links this area with the Usumacinta district but marks it off from that to the north. The large number of unsculptured stelae, however, is a feature uncommon in the south. The carved stone lintel of the Usumacinta is not met with here. Carved wooden lintels at Tikal seem to have taken their place at this site alone.

The roof-comb and its development may be studied to great advantage in the Peten district. The use of massive walls out of all proportion to room space is another characteristic of this area.

The general lack of extensive mural decoration is in contrast to some of the new ruins to the north discovered by the Museum Expedition of 1910-1911. The mask panel at Nakum and La Honradez links the area with that far to the north in Yucatan.

There is reason to suppose, as will be pointed out later, that this centre began very early in the history of the Maya civilization and continued to occupy an important place in Maya life for many years.

The Peabody Museum has tried to adopt a consistent policy in the plans for its annual expedition to Central America. It has been thought better to explore thoroughly the *tierra incognita* of the Maya area before undertaking a careful and detailed excavation of any one site. The expeditions of Mr. Maler in the Usumacinta region, of Mr. Maler, the author, and Mr. Merwin in the Peten district, and of Mr. Merwin and Mr. Hay in southern Yucatan have made us acquainted with the most important sites in a region hitherto practically unknown. After all the various regions have thus been investigated the time will then come for detailed study of those regions and sites which appear to offer the most important points needed to solve the various problems of the Maya civilization.

GENERAL CONSIDERATIONS.

Situation. Nakum is almost directly north of Lake Yaxha (Plate 31) and about half-way in an air line between Benque Viejo and Tikal. It is situated in $17^{\circ} 3' 40''$ north latitude and, roughly, $89^{\circ} 30'$ west longitude.

Topography and Water Supply. The greater part of the Department of Peten is a rolling plain with few high elevations. The region occupied by Nakum is generally level. The ground to the south and west of the ruins falls off rapidly to the bed of a stream which flows in an easterly direction around the southwestern and southern sides of the city. There are partially artificial terraces on the southern and western side. The southeastern corner of this terrace is seen in Plate 48, 1.

The region is exceedingly healthful in the dry season, and water is abundant for the greater part of the year owing to the damming up of the stream just below the ruins. On account of the unfailing supply of good water work can be undertaken here much more easily than at Tikal, Naranjo, or La Honradez, where the water supply is from *aguadas* which are likely to dry up toward the end of the dry season.

Name. It will be noted that I have taken the liberty of changing the spelling of the name of the ruins, given finally by Périgny as Nakcun, to Nakum. This explorer in his first mention of the site (1906 and 1908) called it Nacun. This seems to me a more correct form than Nakcun, which he employs in his later descriptions of the ruins (1910, 1910 a, 1911 and 1911 a). At the present time the Maya language is practically not spoken at all in the vicinity of the ruins, and it is impossible to determine therefore from those who speak Maya the real name of the region occupied by this ruined city. Nakum seemed quite as correct a form as Nakun in the opinion of the present population of the country. Nakum has in its favor the fact that it is a purer form of Maya. *Na*, the word for house, is a very natural component of a name given to a ruined city, and *kum*, written also *cum*, meaning *olla* or vessel, is also associated with the ruins. The word "Nakum" would therefore mean the "house or place of the ollas." As Mr. Thompson writes in a personal letter, "He or they who first came upon the ruins, probably as hunters or *milperos*, may have found in some of the ruined chambers incense-burners and votive vessels or the fragments of these vessels scattered around in profusion and so called it, the house or the place of the pots or vessels." The custom of the Lacandonos (Tozzer, 1907) in placing incense-burners of their own manufacture in the ruins at the present time should be noted in this connection.

It must be confessed that the more proper form of the term would be Kumna as Labna, old houses, the name of a group of ruins in northern Yucatan.

History of the Site. Nakum has had a short history as compared with that of Tikal. Gatherers of *chicle* visited the ruins over fifteen years ago, but Count

Maurice de Périgny was the first one to make known to the scientific world the presence of the ruins. He visited the site on his expedition of 1905-1906. The situation of the ruins first appears on his map (1908), but he makes no reference to the site except in the first paragraph of his paper, where he groups it with Tikal, Uxmal, and Chichen Itza in importance and states that he discovered the ruins in 1905.

Maler has Nakum, written Nakeum, on his sketch map (1908, p. 56), but it is incorrectly situated to the northeast of Holmul. He did not visit the site.

Périgny returned to Nakum on his expedition of 1909-1910 under the auspices of the Ministère de l'Instruction publique and the Société de Géographie. He spent about six weeks at the ruins, clearing the site of vegetation, cutting down trees, and thus making possible the photographing of the ruins as a whole. So great was the labor expended in the work of clearing the site that little time was left for excavation.

The Peabody Museum Expedition of 1909-1910, on hearing reports of the ruins of Nakum from several sources, planned to visit the site. Word was received that Périgny was already on his way there from Coban. Plans were therefore changed so that Périgny, the real discoverer of the ruins, might not be anticipated in his work. I had the pleasure of renewing my friendship with Count Périgny at El Cayo as he was on his way to the ruins, and I told him of our intention to visit Nakum on his departure. I further assured him that my publication on Nakum would be delayed until his report had appeared. As his papers on this ruin have been published (1910, 1910 a, 1911, 1911 a) I feel it no longer necessary to withhold this report.

Too much credit cannot be given to Count Périgny for his discovery of the ruins, his perseverance in reaching Nakum from Coban, and the labor expended in clearing the site. Our thanks are due him for the latter, as it made our work comparatively easy. As he expresses it (1911, p. 15), "*Après mon départ, des archéologues américains se sont rendus à ces ruines de Nakeun. Quelque soit le résultat de leurs propres travaux, nous ne pouvons que nous féliciter, pour le bon renom de la science française, des recherches ultérieures entreprises à Nakeun puisque, grâce à l'intérêt que le Ministère de l'Instruction publique et la Société de Géographie ont bien voulu porter à ces études, c'est à elle que revient l'honneur de la découverte et du premier déblaiement de ces ruines.*"

The Peabody Museum Expedition of 1909-1910 spent from February 27 to March 21, 1910, at the ruins. The Museum Expedition of 1910-1911, under the charge of Mr. Merwin, revisited the site on its way to photograph a stela reported north of Nakum (Plate 53) at a site called El Encanto (Fig. 101). No work was done at the ruins at this time.

The expedition of 1909-1910 attempted a partial survey of the site. The principal structures were located by means of a transit. This part of the work and that of photographing were in charge of Mr. Merwin, to whom my acknowledgment has already been made. The smaller structures were located with far less accuracy. The major buildings, lettered on the map (Plate 32), are accurately placed, but the position of the ruins which are numbered on the map should be regarded as only approximate. The survey did not include the long Northern Extension. A small amount of excavation was undertaken, consist-

ing mainly of clearing three *chultunes* and rooms in Structures E, N, and R, and the southern tower of Temple A.

The present paper should be considered in every sense "preliminary," as a thorough exploration of the site could be completed only after several years of careful work. This could be most profitably undertaken, as the site is most important and presents many most interesting problems of Maya archaeology.

Care has been taken in the plans of the various buildings to indicate by solid black only those parts of the structures where the walls were actually seen in place. All other parts are shown by dotted lines. There is no doubt that further excavations will show that many changes are necessary in the detailed plan of many of the buildings.

Approach to the Ruins. The easiest way of reaching Nakum is by boat from Belize, British Honduras, to El Cayo at the head of navigation of the Belize River. During the greater part of the year motor boats run up this river at frequent intervals. Toward the end of the dry season *pitpans* are used. From El Cayo a good wagon road has just been completed to Benque Viejo, the frontier town, three leagues away. El Cayo and Benque Viejo are the headquarters of many of the *chicle* companies which operate through northern Guatemala and western British Honduras.

Count Périgny reached Benque Viejo and El Cayo by travelling overland from Coban. This is a long and difficult trip and is not to be recommended. The approach from the west by way of the Usumacinta River is also far more difficult than that by way of Belize.

Owing to the extensive trade in *chicle*, trails run in every direction throughout this region. It is seldom necessary to cut paths for any great distance in order to reach the ruined sites. This is a great saving of labor, and the information gained from the *chicle* gatherers is most useful in locating ruins. In addition, food supplies are comparatively easy to obtain owing to the fact that the mule trains of the *chicleros* can often be depended upon for bringing in supplies. They go out loaded with the gum and are usually glad of a return cargo.

From El Cayo the trail runs directly west to Buena Vista. Here the Belize River is crossed and a general northwesterly direction is taken. It may be helpful to future travellers to note some of the various camps for mule trains along the way. Four leagues from Buena Vista is Chunvis. Just before reaching this camping site it is possible to turn almost directly west to the camp of Invierno belonging to Don Beningo Silva, thence to the ruins of Naranjo (Maler, 1908). By continuing west from Naranjo a short distance and then turning north a trail may be taken which eventually reaches Nakum. This route is not recommended.

A more direct way is to take the trail running northward from Chunvis over a steep and high hill where the path divides. It is possible to reach Nakum by either of the two trails. By taking the one running west, after passing several abandoned *chicle* camps (Jato de Juan Cruz, etc.), you reach the trail from Naranjo to Nakum coming in from the south. By continuing straight on in a northwesterly direction, passing the Jato de Solomon, also called Invierno, the ruins are finally reached. This is the shortest way to Nakum, but there are many turns and many side trails which are perplexing. By keeping on directly north

from Chunvis some distance beyond the trail to the west, just described, you make a long turn to the west and south, passing El Rio and Laguna Colorada, and finally run into the same trail already mentioned. The ruins are about one-half a league to the west of the main road, which continues northward.

The relative distances may be approximately determined by consulting the map (Plate 31). It is quite possible to make the trip from El Cayo to Nakum in two days but with a loaded mule train three or four days are usually necessary.

Labor. There are several possibilities in regard to the question of workmen. Périgny employed Indians whom he brought overland from Coban. The trip is a long and difficult one, as there is no direct trail. The Cobaneros are usually willing to bind themselves only for a short time and then insist on returning to their homes. Périgny also obtained Indians from San Andres, a *pueblo* on the shore of Lake Peten, near Flores. These men are good workers, but are usually willing to hire themselves out only after a request from the *Presidente* of the *pueblo* and that of the *Jefe Politico* of the district.

A few men may generally be picked up at El Cayo and Benque Viejo. These are usually either Indian or "creole." During the *chicle* season labor is very scarce in these towns, and one cannot depend upon any large number of men for any length of time. The Peabody Museum Expedition of 1910-1911 used "creoles" from Belize with success. These men will sign contracts and are, on the whole, more to be depended upon than any other class of workmen available in this country.

In taking workmen from British Honduras to Guatemala it is necessary to furnish a bond of \$4,000 to the British authorities at Belize to cover wages and other costs. This amount does not depend in any way upon the number of men engaged.

Size. The main group at Nakum is about 1,350 feet from north to south, and 1,000 feet from east to west; 2,000 feet should be added to the length of the city from north to south if the Northern Extension is included in the measurement. The city proper covers only about a third of the ground occupied by the ruins of Tikal.

Assemblage. The unit in the grouping of the buildings at Nakum, as in all the other ruins of the Peten area, is the court or plaza. There is a system of connected courts, and the plan presents a compact whole with a comparatively few mounds which seem to stand disassociated from any surrounding structures. The Northern Extension (Plate 33) is unique, being a broken line of low mounds connecting the northern outpost of the city with the main group.

The plan of a site like Tikal or Nakum presents an entirely different appearance from that of one of the northern Yucatan cities. The latter has little unity, and the buildings appear to have little relation to each other. There is nothing in the topography of the country to the north to prevent a compact and well-oriented plan. The Usumacinta Valley sites are, again, quite different from those of the Peten area. In the latter the topography does undoubtedly prevent any unity in the plan of the whole city.

The plan of Nakum (Plate 32) in several ways suggests that of Tikal (Tozzer, 1911) and La Honradez. In each of the three cities there is one plaza which seems to be more important than any of the others. At Tikal and at Nakum the most important buildings are grouped around this court. At all three

cities the greater number of stelae are found in this court, and are closely correlated with the structures forming the sides of the plaza. At Nakum there is found one considerable elevation and at Tikal three crowned with buildings which we have called acropoleis. The long Northern Extension at Nakum may be pointed out as equivalent to the northern suburb at Tikal.

The three cross-sections through the ruins (Plate 34) give a good idea of the different levels of the various courts and the relative heights of the buildings. Court XIII, on the northeastern corner of the site, is the lowest, the level of the Great Plaza being slightly above this. The courts surrounding the Acropolis are higher still. These sections make clear how the whole site presents a well-knit-together appearance, a unity in plan not found in any other of the Maya areas.

ORIENTATION. The buildings all face roughly one of the cardinal points. Unfortunately it was impossible to find the front wall of a single building in a position so that a careful orientation could be determined. The only wall which was available for a careful survey was the back wall of the inner room of Temple A. Mr. Merwin found that this was $3^{\circ} 42' 20''$ east of north, referred to the true meridian. It is worthy of note that the four temples of Tikal which were orientated (Tozzer, 1911, p. 106) were also all east of north. The smallest amount of variation from true north of the back inside walls of the Tikal temples was $8^{\circ} 57' 45''$. It will thus be seen that the back wall of Temple A of Nakum is much nearer the true meridian.

Professor Robert Willson, who has been much interested in the question of the orientation of pre-historic buildings, has suggested to me the possibility that the true line of sight was neither the front walls of the buildings nor the inside wall at the back, but rather a line running at right angles from the inner back wall of the building to the front of the structure directly in the middle of the main doorway. This is an important subject of investigation and one which should not be neglected by future explorers in Central America.

Construction. It is no longer a novelty in discussing the Maya system of construction to point out the similarity between the form of masonry in some of the Maya sites and the modern system of concrete walls. Nakum furnishes many excellent examples of the non-structural character of the outer facing of stone. This serves simply as a veneer, covering an interior of concrete, a mixture of stone, sand, and lime. The weight of the building rests on this interior mass, and the fall of the outer covering of stone in no way impairs the strength of the building. In fact, the outer covering has in most cases fallen off, as can be seen in Plate 38. No. 3 of this plate shows the lines made by the stone formerly veiling the interior mass. It was difficult to find a single front wall still intact. The same screen-like covering of stone over the mass of concrete is seen in the interior walls. Plate 39, 1, shows this wall facing fallen away slightly from the interior.

Several of the structural weaknesses of Maya architecture appear at Nakum. The use of the wooden lintel is responsible for the fact of the fall of almost all the outer doorways. These are generally wide and the stone lintel is therefore not used to span the openings. When the entrances are narrow, as at Yaxchilan, and the stone lintel is employed, the buildings usually present a well-preserved façade.

Another element of weakness is the failure to use binding stones between the interior mass of concrete and the outer stone covering of the walls. The backs of the facing stones are flat and do not bite into the concrete behind. When the outer facing is composed of carved stones to form some design, it is much more common to find these blocks set into the mass behind with tenons. Some of the northern Yucatan buildings show fine preservation owing in part, no doubt, to this fact.

The firm character of the concrete is to be noted in Plate 39, 3, where only a portion has fallen in spite of the fact that the wooden lintel has disappeared.

SUBSTRUCTURES. The Acropolis mound (Plate 47, 1), which stands near the southern end of the city, is probably entirely artificial. The wide space on top places it in a class by itself, differing from the usual pyramid temple.

The temple mounds show less uniformity here than at Tikal. Some of them were undoubtedly terraced, while others have almost vertical sides and are more in the nature of high platforms than pyramidal substructures. In general the supporting mounds are not so high as those at Tikal.

The substructure of Temple A (Plate 40, 1) differs from that of any of the other buildings. A long mound is divided at the top into three sections, on the central one of which the building is placed. Temple V (Plate 49, 2) shows two low mounds at either side of the main structure. Temple E (Plate 44, 1) and Temple N (Plate 45, 1) also have variations from the single square-topped pyramid.

STAIRWAYS. The stairways in front of the pyramidal temples are similar to those at Tikal. They rise at a lesser angle than the foundation mounds and therefore project from the base of the substructure. In one case (Temple C, Plate 41, 2) several steps are still in place. The width of these is 10 inches and the height, 14 inches. The side retaining wall is still preserved in Temple U. There are no interior stairways as far as can be made out.

SUPERSTRUCTURES. *Types of Buildings.* In most cases it is possible to distinguish the two types of structures usually pointed out in Maya buildings, the pyramid temple and the residential type. The two are not as closely differentiated here at Nakum as at Tikal, where all the temples have the projecting portion at the back and the indentations at the sides together with the same arrangement of rooms, one behind the other. The pyramid temples at Nakum are usually more complicated as regards their plan and are not by any means uniform.

A development of the lateral chambered temple is to be noted at Nakum. Temple A might be classed with Structure 27 at Tikal. Both are built on high mounds and each has three entrances and two ranges of rooms. There is a decided tendency at Nakum to have single chambered buildings on the top of the mound at either side of the main structure. In Temple E (Fig. 57) these lateral chambers are wing-like projections from the main building. In Temple N (Fig. 65) the side chambers are in detached buildings at right angles to the main structure. The mounds at either side of Temple V (Fig. 81) may show another variation of the same idea.

The temples at this site with one exception do not show the huge masses of masonry in proportion to room space as at Tikal.

The residential type of structure is, in general, similar to the corresponding

type at Tikal, two series of rooms running lengthwise of the building with a single transverse room at either end. Successive additions to the general plan are often to be noted here.

In the restorations which have been attempted in the cross-sections of the site (Plate 34) the buildings have been shown as having flat roofs. There is little doubt that the sloping roof as well as the sloping upper zone of the façade are uncommon features here. It must be admitted that the question of the roof-form of the buildings and the finish of the upper part of the façade is only one of many which can be answered only by further investigation.

Roof-combs. Roof-combs are not an important feature at Nakum. There is the greatest contrast between the massive roof structures on the Tikal temples and those at Nakum. In most cases the roofs of the temples here have fallen, but there is little evidence that the heavy roof-combs of Tikal are to be found at Nakum. The towers of Temple A (Plate 40 and Figs. 51, 52) are an interesting modification of the roof-comb. Here we find massive walls of the buildings proper, several times wider than the rooms themselves, and heavy enough to support great weight. The roof-comb has been split up into three tower-like divisions. In the interior of each there is a small room. Long narrow perforations of the comb from front to back are also to be noted. These have no connection with the inner room.

The purpose of the roof-comb and the so-called flying façade seems to be identical throughout the Maya area, a place for decoration and for nothing else. The first attempt at a high superstructure is probably seen at Tikal. As a result of the desire for a high roof-comb, it was thought necessary to have a very massive pile of masonry on top of the building. In order to support this excessive weight the walls have to be made of great thickness with a consequent sacrificing of room space. Dr. Spinden (1912, p. 170) suggests a chronological arrangement of the five great pyramid temples at Tikal from a study of the relative amount of room space to wall space. There is no doubt that experiments were made by the builders at Tikal to lighten the mass of the roof structure. The discovery of the interior spaces in the roof-comb of Temple V at Tikal (Tozzer, 1910, p. 100) seems to show the beginning of this attempt to lessen the weight on the walls of the building. A similar advance is to be noted here in the towers of Temple A. The interior space in each of the three towers corresponds exactly to the similar phenomenon at Tikal. These interior spaces cannot be called rooms, as there are no traces of entrances. A further step is also to be mentioned here on Temple A. The perforation of the mass of the roof-comb from front to back by long narrow rectangular openings, having no connection with the closed-in interior spaces, is another attempt evidently to lessen the weight on the walls.

There seems to be little doubt that this type of roof-comb on Temple A marks the turning-point in the history of this superstructure in the central Maya area. The perforations from front to back show the beginnings of a movement which led to the light lattice-work type of roof-comb seen on many of the sites in the Usumacinta area (Yaxchilan, Piedras Negras, and Palenque). The interior spaces, at the same time, suggested that the roof-comb could be built with a corridor-like room running lengthwise of the superstructure. The roof-comb of the Tzendales ruin shows this stage of the process.

The Tower at La Honradez presents another line of development where the roof structure, like those of Temple A, is massive, but the interior room of the building itself runs up into the interior of the comb, thus combining in one high vaulted room the ordinary chamber of the structure and the interior space of the roof-comb proper.

Vaults. The typical Maya over-stepping vault is commonly employed in the interior of the buildings. The narrow room and the high vaulting of the interior rooms of Temple A recall the vaulting of the Tikal temples.

There are two examples which seem to show the nearest approach to a true concrete arch yet found in the Maya area, the two lateral doorways in Temple A (Plate 40, 1 and Fig. 51). By a close examination of the masonry it seems impossible to believe that these could have been constructed without some temporary wooden form. The unevenness of the spring of the arch is to be noted. Périgny (1911, Plate XI, Fig. 2) shows one of these doorways in detail. Neither of these arches shows the usual shoulder at the spring of the vault. This might invalidate the theory of Spinden that the shoulder is necessary in order to remove the wooden form. Mr. Merwin has found several vaults in the ruins in southern Yucatan which do not have this shoulder. With the exception of the two doorways in Temple A all the other vaults at Nakum show the offset at the spring of the arch.

The Maya vault has been much discussed. It is in no sense a true arch, but a corbelled or false arch with a cap stone in place of the key stone. In many cases the sloping sides of the vault meet at the top and the cap stone is not visible from the floor of the room. Dr. Spinden (1912, p. 109) has suggested that an interior form of wood was necessary in the erection of these vaults. This is possibly true in a few cases where the stones of the vault do not rest squarely upon each other but touch only at the outer edges. Dr. Spinden (1912, Plate 4, Fig. 2) shows an example of such a vault from the ruins of Labna. The northern end of the room in Temple V (Plate 39, 1) at Nakum shows a vault where the stones rest squarely on one another. No temporary wooden form would be necessary in the erection of this vault. Numerous examples of wooden beams crossing from one side of the vault to the other are noted especially at Tikal. These support the thrust of the vault, and were evidently placed in position at the time of erection. Fig. 77, *d*, shows these beam holes. Temporary forms would be impossible in such a case. It is therefore better not to lay too much emphasis upon a single method of construction of the Maya vault.

An interesting arrangement of the stones at the top of the vaulting is seen in one of the rooms in Structure D (Fig. 56).

Doorways. The doorways are similar to those at Tikal. In the temples there is usually a single entrance formed by several wooden beams placed side by side. Stone lintels are employed usually only over the narrow interior doorways. No carving is seen either on the wooden lintels, as at Tikal, or on the stone lintels, as at Yaxchilan. The most interesting doorways are in Temple A. Mention has already been made of the concrete arches of the two side entrances to the inner chamber of this building. The middle one (Plate 39, 4) shows the flat wooden lintel.

Wall Openings. There are few openings in the walls at Nakum as compared with those at Tikal. There is none that may be called a window. The nearest

approach to a window is the circular opening in the northwestern room of Temple N (Plate 46, 2).

Often the wall is pierced by a large number of small holes a few inches in diameter. Cupboard-like depressions were found in a few cases. One of these in the Southern Annex of Temple N had an opening at the back running completely through the wall (Plate 51, 5).

The tie-hole (Plate 51, 3, and Fig. 69), a depression in the wall with a stick running across it embedded in the masonry on each side, was found in the upper chamber of the Southern Annex of Temple N. A similar feature was found at either side of the outside doorway of Temple I at Tikal, and there is little doubt that they were used to suspend curtains before the doors.

Floors. The floor of the rooms is in all cases finished with a layer of smooth plaster. Game-like designs (Fig. 49, *e* and *f*) in some cases are scratched upon the floor.

Double floors were found in the upper chamber of the Southern Annex of Temple N and in the southern tower of Temple A (Fig. 52). This is by no means an uncommon feature in Maya construction. The lower floor in the Annex of Temple N is 2' 6" below the upper one. In the tower of Temple A the floors are a little over 2' apart. In each case the lower floor shows a finer finish. No satisfactory explanation can be suggested to account for these double floors.

In the top of the bench in Temple E there is a bowl-like depression (Plate 51, 4) beautifully lined with plaster. It had clearly not been used as a fireplace, but perhaps as a receptacle for a liquid offering, assuming that the bench is an altar.

The northern room of Structure R shows a depression in the floor which appears as if it had been used as a fireplace (Fig. 77, *c*).

Benches. The use of stone or rubble benches was noted at Tikal. They are sometimes in the nature of platforms running along the inside wall of the room. At Nakum several of these are found. Temple E has a bench running almost completely across the back half of the room, and around the northern end of the room (Plate 51, 4). A small bench is noted in the northwestern room (6) in Temple N, before a circular opening in the wall. One in the northern room of Structure R (Fig. 77, *d*) has arm-like masses of masonry at each end, against the wall. It is difficult to determine the use of these platform-like elevations. The first idea which presents itself is that they were used as altars.

Decoration of the Buildings. *FAÇADES.* Tikal is singularly barren in architectural decoration. At Nakum the desire for severity is carried to an extreme. At this site there is little to show the Maya love of decorative display. The façades are almost entirely plain, broken by a simple medial moulding. The cornices are usually quite as undecorative as the mouldings, often no more than the simplest of string courses. The northern side of the main building of Temple N (Plate 46, 2) gives a good idea of the usual arrangement of the façade at Nakum. The lower zone is plain with a slight projection of the wall at the corners of the building. This wall in all cases is covered with a fine layer of plaster. The medial moulding is usually very plain, composed of a string course projecting from the wall a few inches. Above this the stones of the upper zone appear at the present time very uneven and uncovered by plaster. It is usually impos-

sible to determine the former character of this part of the wall. There is little doubt that some simple form of stucco decoration covered the rough stones.

MASK PANEL. The mask panel is almost the only form of design now to be found on the Nakum structures. It is far less uniform than those in the ruins of northern Yucatan, and many of the elements usually associated with the mask panel, as given by Spinden (1912, pp. 118-124), are lacking. The masks are usually built up of stone with many of the details added in stucco.

The mask (Fig. 53) which forms the central part of the design on the front of the middle of the three towers of Temple A shows simply the face with the nose plugs forming the most prominent feature. It is quite unlike the usual form of mask panel.

Masks were noted on Structures F (Fig. 59), G (Plate 51, 1), L (Plate 51, 2), and S (Fig. 79). The spiral design was common in many of these masks, forming a lateral decoration on that of G, the superior eye ornament on the design of L, and the eye itself on the mask of F. The eye, composed of a small round stone set into a large square opening, is characteristic of the masks of Structures G and L. The ear plug is to be made out on the design of L. Feathers as a lateral decoration are plainly visible on the masks of F and possibly that of S.

A stucco design on the northern façade of Structure R (Fig. 76) is worthy of mention in connection with the mask decoration. It seems to form a part of the lateral design of a mask. The ear element is almost exactly similar to that of the mask of Structure S (Fig. 79), and the serpent or feathers design forming the lateral ear ornament encloses a seated figure.

In considering the decoration of the buildings mention should be made here of the two stelae, N² and U, which show the usual type of Maya design, the elaborately decorated human figure with feather headdress. These two monuments form the only exception to the statement that little design other than mask forms is to be found at Nakum. It is probable, however, that further exploration will reveal other forms.

INCISED AND PAINTED DESIGNS ON WALLS AND FLOORS. The incised and painted designs found on the walls and in a few cases on the floors of the buildings at Nakum are not as elaborate as those noted at Tikal. These crude figures have never been satisfactorily explained. There is some probability that they were made by early pre-Columbian visitors to the ruins who were not necessarily contemporaneous with the occupation of the city. A very few of those found are reproduced here, and these require little notice.

There seems to be no intentional grouping of the figures, and no significance need be placed on the relation of the various pictures found in the same room to each other. There is no great difference noted between those painted and those incised. Temple E has the greatest number of figures, the walls being literally covered with designs, some of which cover several feet. The serpent appears in various ways here.

The human form is common in the Nakum figures. Fig. 48, *a*, shows a man in profile with a face with ape-like characteristics. Fig. 48, *b*, is a figure in front view possibly, with a feather decoration on the head and also hanging from the elbows and the side of the body. Fig. 48, *c*, probably represents a person speaking, although the speech signs so common in some of the ruins in northern Yucatan are not usually found in this area. Fig. 48, *d*, seems as if it might be post-Columbian

with buttons indicated on the body. The feather element rises from the top of the head. A single face (Fig. 48, *e*) appears as one of the designs in Temple A.

One of the best executed figures, a swastika-like design in red paint, is on the back wall directly in front of the door of Temple E (Fig. 48, *f*). Another painted design (Fig. 48, *g*), in the same room, is difficult to explain. The elaborate stepped pyramidal temples incised on the walls at Tikal (Maler, 1911, Figs. 9

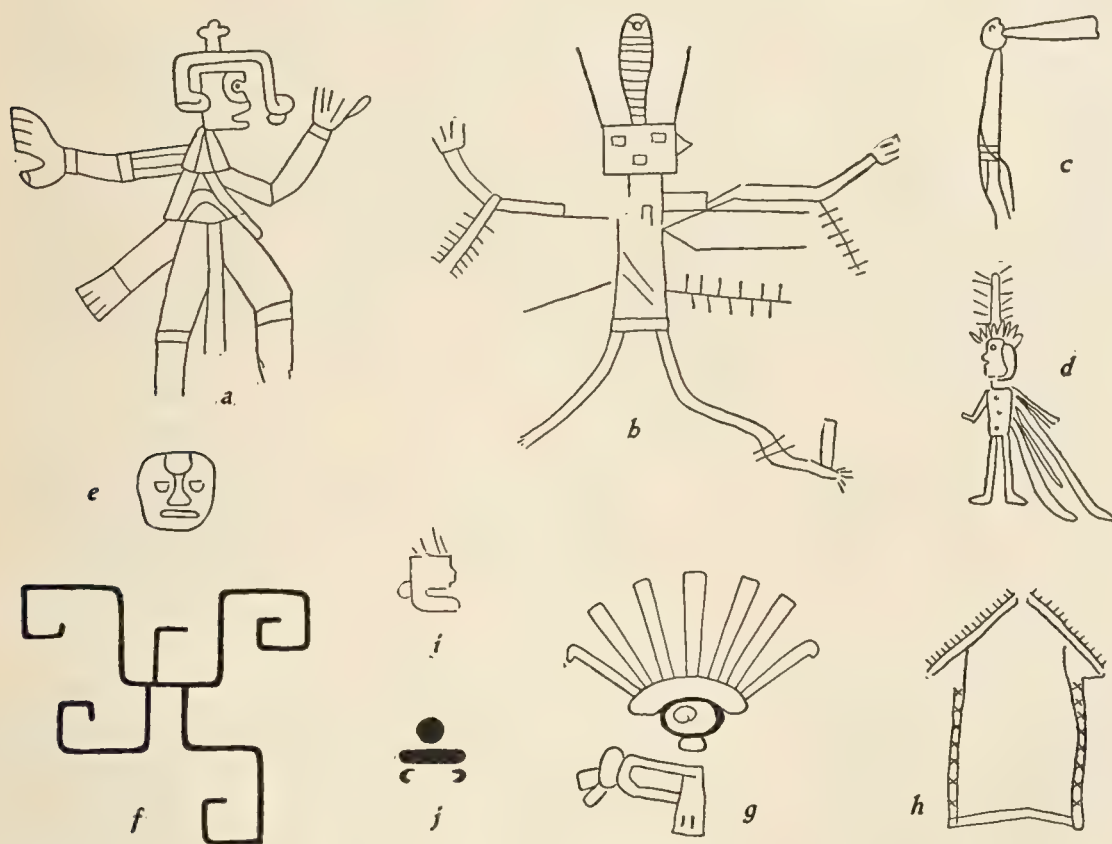


FIG. 48. — *a*, Temple E: western wall, figure in black paint; *b*, Temple E: eastern wall, figure in black paint; *c*, Structure R: northern room, incised design; *d*, Acropolis: incised design on building; *e*, Temple A: incised design; *f*, Temple E: design in red paint; *g*, Temple E: painted design; *h*, Temple A: incised design; *i*, Temple N: Northern Annex, lower chamber, incised design; *j*, Temple N: Northern Annex, lower chamber, painted number.

and 13) do not appear here. A single design (Fig. 48, *h*) may show a thatched house.

Several glyph-like forms are found on the lower chamber of the Northern Annex of Temple N. Here alone there may be some connection between the different figures. Varieties of Fig. 48, *i*, appear four times, and Fig. 48, *j*, in red paint, may indicate the number 11, two bars and one dot, the lower bar being partially erased. Geometrical forms are most numerous in the incised designs. Fig. 49, *a*, from Temple E, and Fig. 49, *b*, from Structure D, are somewhat similar. A cross form (Fig. 49, *c*) appears in Temple N, and a more elaborate and more carefully drawn geometrical figure in black paint in Temple E (Fig. 49, *d*).

Two of the designs found incised on the floors of the buildings are similar, Fig. 49, *e*, in Temple A and Fig. 49, *f*, in the upper chamber of the Southern Annex of Temple N. These may have been used in connection with some game. A

figure strikingly similar appears on p. 19 of the "Tonalamatl Aubin" (Fig. 49, *g*) in connection with the god Xochiquetzal and a ball-court.

Stelae and Altars. Fifteen stelae are noted at Nakum and eleven altars.¹ There is no doubt that several more will be found when a more thorough investigation of the ruins is undertaken. These are all closely correlated with the buildings in front of which they are found. No isolated stelae and altars dis-

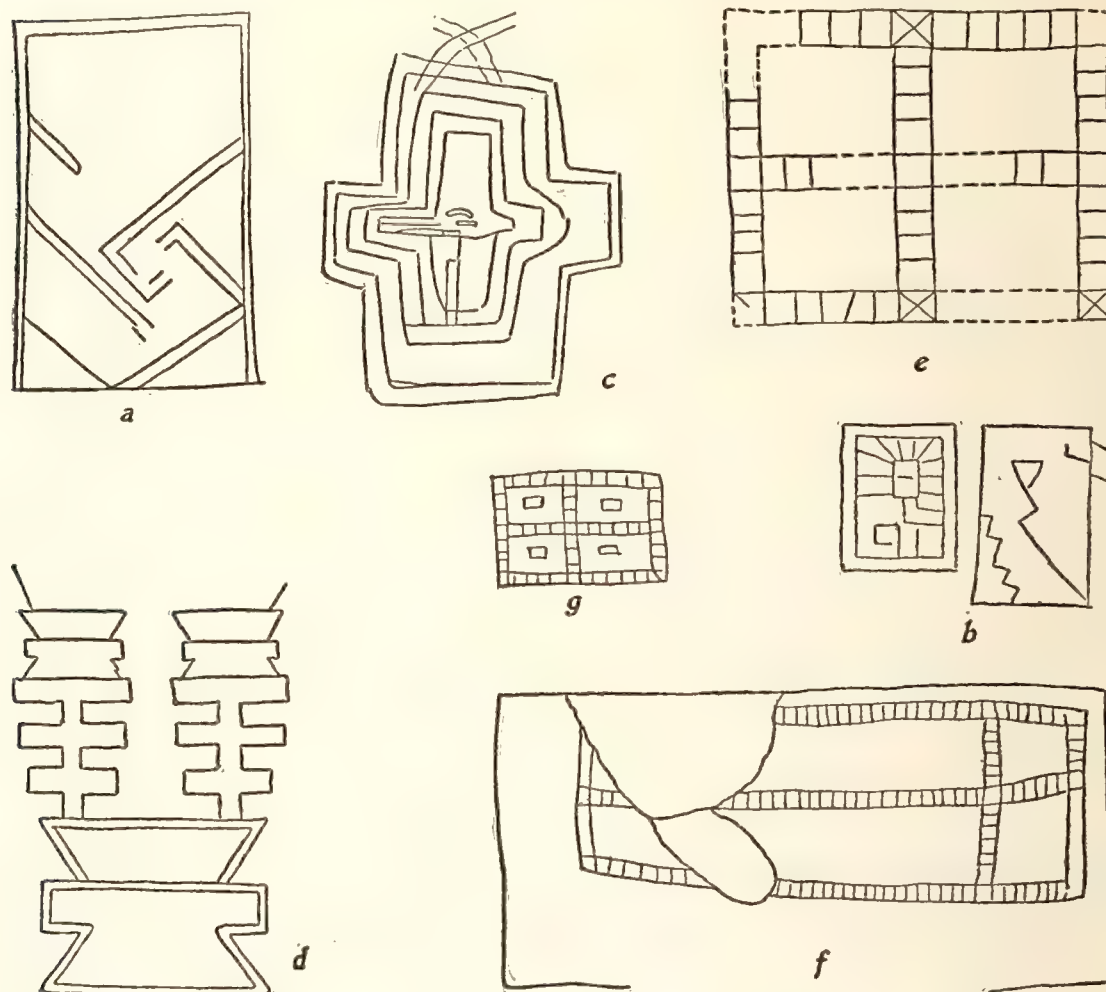


Fig. 49.—*a*, Temple E: western wall, incised design; *b*, Structure D: incised designs; *c*, Temple N: Northern Annex, lower chamber, western wall, incised design; *d*, Temple E: western wall, design in black paint; *e*, Temple A: southeastern room, incised design on floor; *f*, Temple N: Southern Annex, upper chamber, incised design on floor; *g*, design on p. 19, "Tonalamatl Aubin."

associated with structures are noted, as at Tikal. Only two of the stelae are found outside the Great Plaza. Carving is noted on only three stelae.

It was naturally a great disappointment to find so few of the stelae carved. Most of those around the great plaza had fallen, and jacks were included in our

¹ List of stelae and altars at Tikal:

Temple A,	6 stelae,	6 altars,	all plain.
" B,	3 "	2 "	" "
" C,	1 "		carved.
Structure D,	3 "	2 "	1 stela carved.
Temple U,	1 "		carved.
Northern Extension,	1 "	1 "	both plain.

outfit to be used in raising or turning these stones. By a slight excavation under the face of each stela it was easy to ascertain whether or not it was decorated with carved designs. One after another proved to be plain. The only stela which shows any large number of glyphs is that still standing before Temple C.¹

Stela C (Plate 52, 1) has an inscription consisting of nine double glyphs arranged in a single vertical line. Unfortunately the inscription is badly weathered. The glyphs have a curiously squarish appearance. The number nine is made out on the second glyph and on the fifth there is a Tun symbol with two bars above it. None of the other characters were made out.

Stela D, thirty feet in front of the north side of Structure D, has fallen and is badly broken. A fine design once covered the face of this monument (Plates 42 and 43, 1). Plumes of a headdress appear on one of the stones, and a line of crude glyphs probably formed the top of the design.

Stela U (Plates 44, 2 and 52, 2) is still standing directly in front of the stairway of Temple U. The design has almost entirely disappeared. Only a few feathers of a headdress can be made out. Mention should be made of the groove cut around three sides of this stone near the bottom.

This completes the description of the carved stelae at Nakum. The failure to find decoration on the faces of the monuments at Nakum, coupled with a corresponding lack of design on many of the Tikal stelae, strengthens the idea which I advanced in my report on the latter city, that there was probably at one time some form of painted design adorning the smooth faces of these monuments.

Mention should be made at this place of the stela found by Mr. Merwin at the ruins of El Encanto, about sixteen miles northwest of Nakum. This small stone formerly had a design on its face and a hieroglyphic inscription on either side (Plate 53 and p. 194). It is surprising to find a sculptured stela at so unimportant and so small a group as El Encanto when the whole site of Nakum has only three worked monuments. It is evident that the size of the group in which the stela is found is no criterion for the sculpturing of its stelae. The two most beautiful worked stones at Tikal, Stela 16 and Altar 5, were found tucked away in the centre of an insignificant group of low mounds in the western part of the city and not connected in any way with a building.

¹ The stela at the neighboring ruins of El Encanto (Plate 53 and p. 194) has an inscription on either side.

DETAILED DESCRIPTION.

In order to make as clear as possible the detailed description of the site I have numbered the courts with Roman numerals with the exception of the largest court on the north, which I have called the "Great Plaza." Several of the smaller outlying buildings I have called "Groups" rather than "Courts." The Acropolis will be considered a unit by itself as well as the Northern Extension.

THE GREAT PLAZA.

This, as has been pointed out, is the most important feature in the plan of Nakum. A good idea of this court is given in Panorama 1 (Plate 35, 1) showing

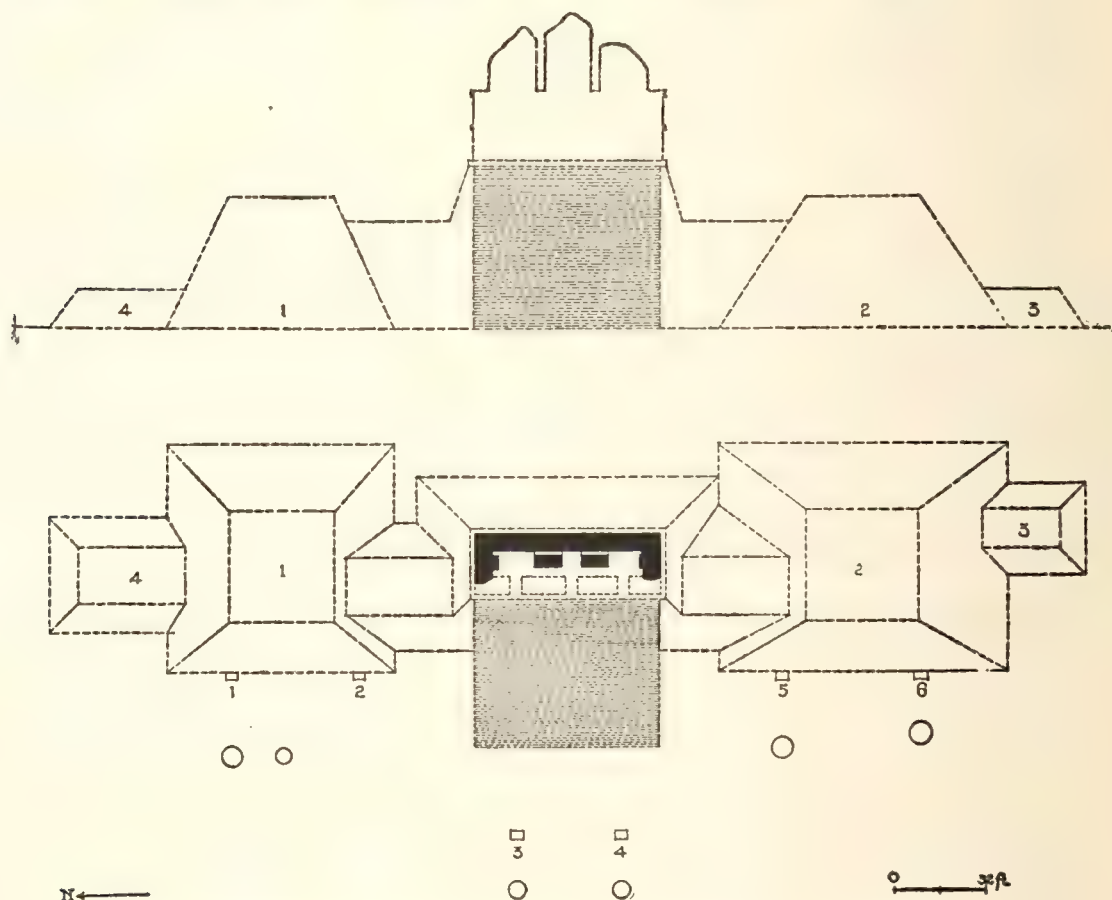


FIG. 50. — Temple A: elevation and plan of structure with Mounds 1-4, and stelae and altars.

Temple A on the east, Temple C on the west, and Structure D occupying the entire southern side. Twelve of the fifteen stelae are found around this plaza.

Temple A. In several respects Temple A (Plate 40 and Figs. 50-52), which

forms with its mounds the eastern end of the Great Plaza, is the most interesting building at this site. The whole edifice consists of a high central mound flanked on both sides by connecting lower structures (Mounds 1 and 2). These lateral structures are flat on top with no traces of buildings. They probably had stairways on the western side.

On the level of the Plaza and in front of each of the three sections of Temple A are two unsculptured stelae (Fig. 50) with rounded tops and their accompanying altars, also plain. The stelae¹ are symmetrically placed in reference to the

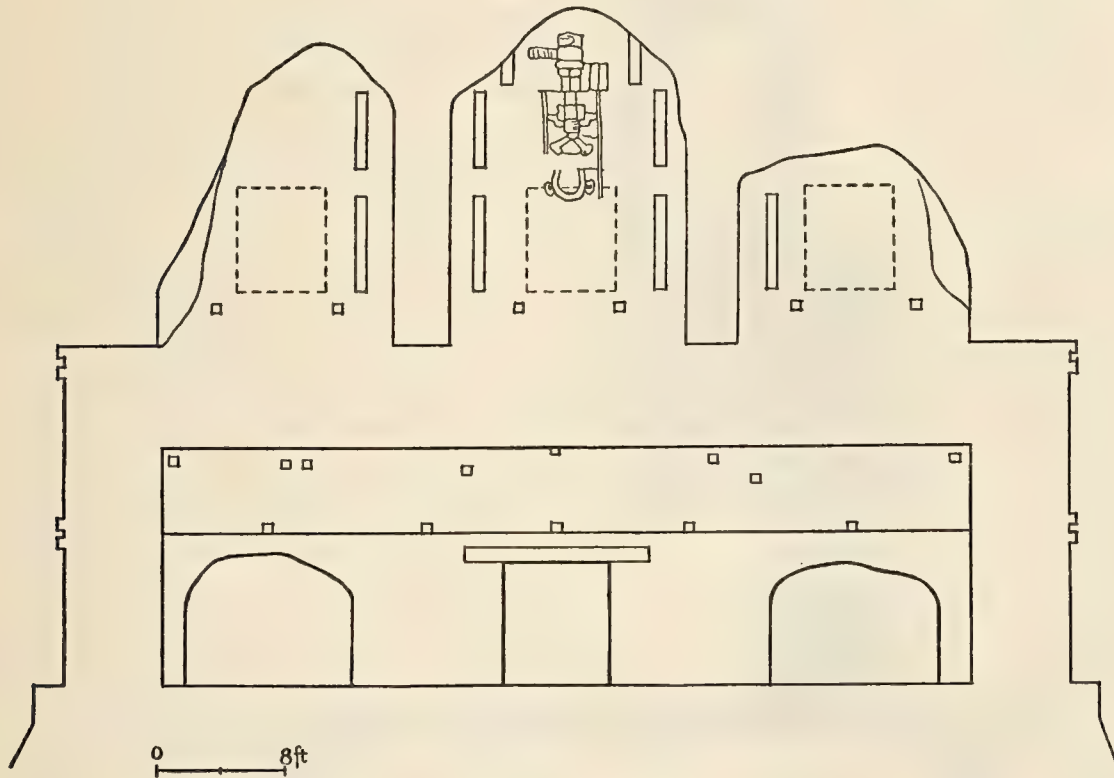


FIG. 51. — Temple A: elevation of main building.

three parts of the structures, whereas the altars are not in every case in front of the stelae.

The building proper is on the high central mound. It faces the west toward the Great Plaza and is approached by a stairway on this side. It might be called of a modified temple type and presents several unique features. The elevation (Fig. 50) shows the relative heights of the main building and the lateral mounds (1 and 2) as well as the low mounds (3 and 4) at the ends.

The three tower-like roof-combs of the main structure (Plate 40 and Fig. 51) serve to give the building a distinction not shared by others at Nakum. These

¹ Dimensions of stelae and altars of Temple A:

Stela A¹ 11' 6" × 3' 10" × 2' 4".

Altar A¹ 7' 3" in diameter, 1' 6" thick.

Stela A² 12' 9" × 3' 8" × 2' 6".

Altar A² 5' 9" in diameter, 2' 9" thick.

Stela A³ badly broken.

Altar A³ " "

Stela A⁴ 9' 7" × 4' 4" × 2' 7".

Altar A⁴ 6' 5" in diameter, 1' 9" thick.

Stela A⁵ badly broken

Altar A⁵ " "

Stela A⁶ 7' 3" × 4' 5" × 2' 6".

Altar A⁶ 7' 7" in diameter, 1' 10" thick.

superstructures were built over the thick wall between the rooms below. The tops of the towers are in ruins, but there is reason to suppose that they were all of the same height. A small portion of the stucco design of the middle tower can be made out. Fig. 53 shows a simplified drawing of the mask portion of the figure. At either side of the decoration in the centre are three tall and narrow

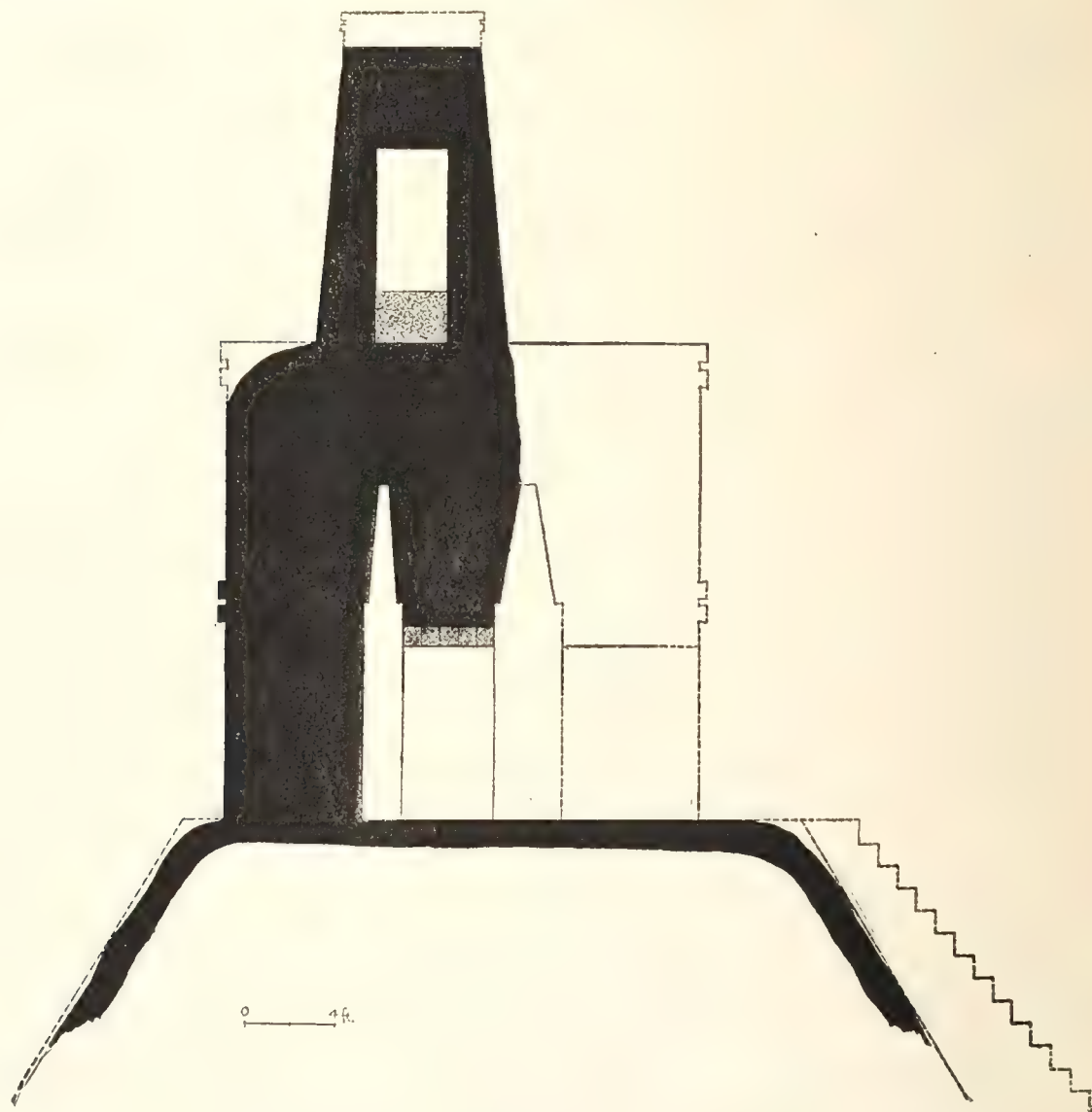


FIG. 52. — Temple A: cross-section showing room in tower and width of rooms.

openings passing completely through the roof-comb from front to back. One which was measured was $9\frac{1}{2}$ " wide and 4' 1" high. Below these tall narrow openings and the mask decoration is a line of small square holes also running through the comb from front to back.

The lateral towers are of the same general plan as the middle one. The decoration upon these has completely disappeared. We found that these towers in addition to the openings from front to back contain interior chambers (Fig. 52) in the centre between the openings before described and behind the mask decoration. The tall and narrow openings in no way connect with the cham-

bers. Owing to the caving-in of the roof of the chamber of the southern tower, we were able to enter it.

On removing the débris we found a room with a flat stone roof (height 6' 3½", length [N. to S.] 5' 5¼", width [E. to W.] 3' 2"). There was no doorway of any kind. On the level with the floor were four small holes (4" × 4"), two on each side leading to the outside. These may have been for drainage. Two feet, four inches below the first floor was a second floor which showed a better plaster finish than the one above. Below the second floor rubble was found. An excavation in this revealed nothing and showed that there was no chance for a second chamber below the first. The walls of the room were unfinished.

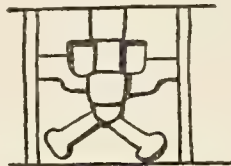


FIG. 53. — Temple A: mask design on front of middle tower.

The northern tower is in ruins, but the remains of the interior room were noted. The room in the centre superstructure is still intact. These interior rooms immediately suggest similar ones which we found in the massive roof-comb of Temple V at Tikal (Tozzer, 1910). The unfinished walls and the absence of an entrance in both cases suggest at once that they were built simply to economize weight and masonry.

It is interesting to note that the perforations at the sides of the tower at Nakum may be the first attempt at lightening the superstructure which leads later to the perforated roof-comb seen at the Usumacinta River sites and in Yucatan. The interior rooms may also have been a similar attempt which later developed into the low and narrow corridor-like opening seen between the two sloping and perforated walls of the roof-combs in other sites.

With the exception of the design on the front of the three towers, the walls of the building show no decoration other than the usual medial moulding and the cornice.

The interior plan (Fig. 50) shows two extremely narrow corridors, 50' 6" in length and ranging from 1' 5" to 1' 9" in width. They are connected by three doorways which probably correspond to the three entrances to the building. The front wall of the structure together with the outer spring of the vault has fallen. The picture of the building (Plate 40, 1) shows the back spring of the vaulting of the first room and the three doorways between the two corridors. Plate 39, 4 gives an idea of the width of the inner chamber. It is only with difficulty that a man can stand with his shoulders across the narrow room. Many small square openings appear in the back spring of the vaulting of the outer room (Fig. 51). Some of these were, no doubt, for cross-beams.

The massive character of the two piers between the three doorways is to be noted. They average about 9' 6" in width and 4' 1" in thickness. The weight of the three superstructures is probably responsible for this mass of masonry and the corresponding diminution of room space. Nowhere else except in the Tikal temples is the proportion of room space to wall space so small. It is difficult to suggest a use for the narrow inner corridor.

The method of bridging the three doorways is interesting. The middle door (6' 8½" in width) is spanned by five massive *sapote* beams. The two lateral doorways (10' 6" in width) have what may be truthfully called concrete arches. They are the first and only examples of the true arch which I have met with in Maya buildings. They are by no means uniform in their curve. The slope is

rather uneven, especially in the northern opening, as may be seen in the photograph (Plate 40, 1). As already pointed out, it does not seem possible to have built these without some form of temporary wooden support.

Running from either end of the massive piers between the doors to the back wall of the inner room are low and narrow walls of stone (1' 1" high and only 4"

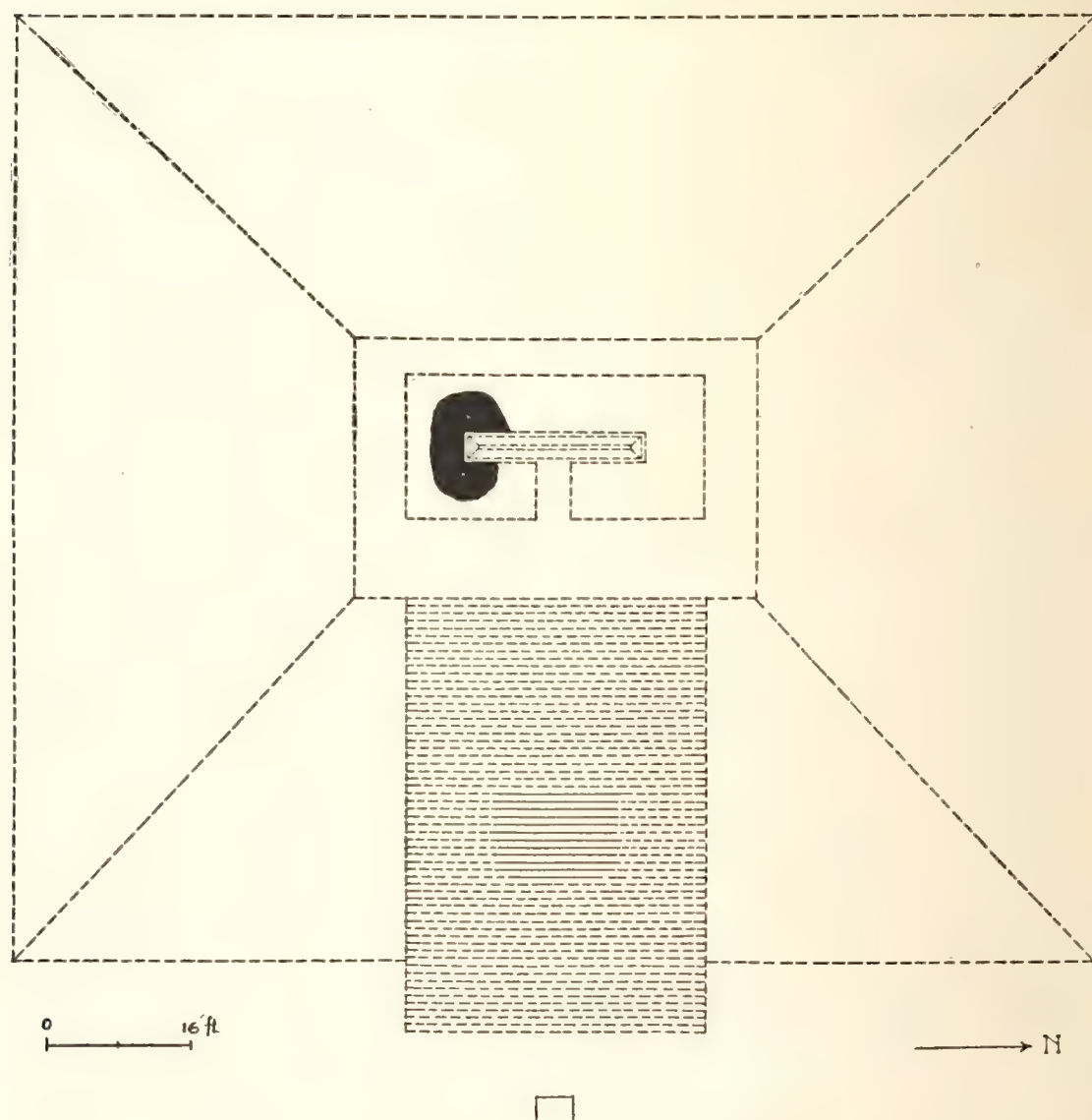


FIG. 54. — Temple C: plan.

thick). Between each pair of walls is débris. The plaster of the back wall of the room runs down below the top of these low walls. This might prevent the logical explanation, that these were the ends of benches built behind each of the two piers in the inner room.

On the floor of the outer corridor and in the southern doorway are remains of incised figures. One of these (Fig. 49, *e*) may have been used in connection with some game.

Mounds 3 and 4 are low structures attached in each case to the ends of the tall lateral mounds of Temple A.

Mound 5 is at right angles to Mound 4, filling in the northeastern corner of the Great Plaza.

Mound B (Plate 37) occupies the centre of the long side of the Great Plaza. Panorama 1 (Plate 35, 1) was taken from the top of this elevation. It is one of the few high mounds which have no structure now standing upon them. The stairway was clearly on the southern side, and the building faced this direction. From the débris it evidently contained a single room. In front of the mound are the remains of three plain stelae with rounded tops and two altars also undecorated (Plate 41, 1). The stelae are all fallen, and parts of each are broken off. One of the altars is in fine preservation. Behind B is **Mound 6**, closely correlated with the main structure.

Temple C (Périgny's "Temple des Hiéroglyphes") (Plates 35, 1, 37, and 41, 2, and Fig. 54) forms a part of the western end of the Great Plaza. Owing to the mass of débris around the base of the mound it is impossible without excavation

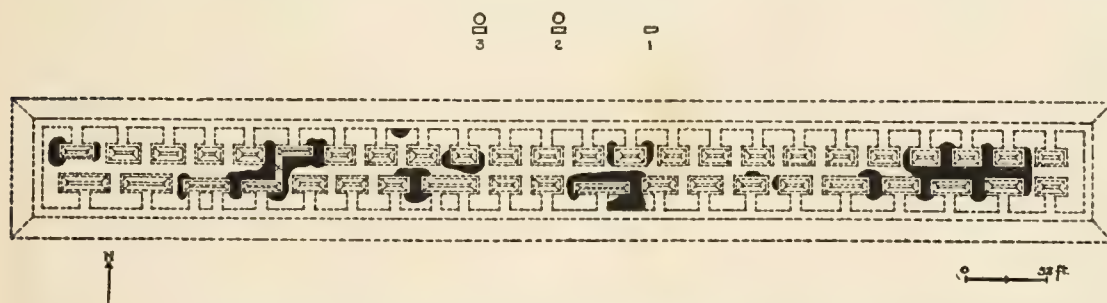


FIG. 55. — Structure D: plan and position of the three stelae and two altars.

to determine the character of the foundation structure. Remains of two terraces are noted on the southern side. The upper part of the foundation mound is almost perpendicular. The temple faces the east, and remains of eleven steps appear on this side. The building contains a single room. The relation of this temple to Structure B is shown in Panorama 4 (Plate 37).

In front of the stairway is the most interesting stela¹ at Nakum. There is no accompanying altar. The stone is still standing, although the upper left-hand corner is badly cracked. On the eastern side of the stela is practically the only inscription found, up to the present time, at this site (see p. 163). Remains of red paint appear on the carving. The stone leans to one side, but the line of glyphs is almost vertical, showing possibly that they were carved after the stone was in place and after it had assumed a leaning position.

The northwestern corner of the terrace of the Great Plaza is plainly marked to the north of Temple C. At this point the Northern Extension (p. 187) begins. Below the level of the terrace, which is about 5 feet high at this point, are several mounds. **Mounds 7 and 8** are parallel to each other, running north and south. Each probably contained three rooms. Périgny dug a trench through the first of these mounds. **Structure 9** runs east and west. It consisted of a single range of rooms with entrances on the north. These three mounds should probably be considered as correlated with Temple C, as Mound 6 is to Structure B. **Mound 10** is a small square structure to the southeast of 9.

The western side of the Great Plaza is completed with **Mound 11**. There

¹ Its dimensions are 10' 1" × 4' 2" × 2' 10".

is little remaining to show the arrangement and the number of rooms. To the southwest of 11 at the western end of D is a small elevation which has been called **Mound 12**.

Structure D. This remarkably long building forms the entire southern side of the Great Plaza. Panorama 1 (Plate 35, 1) from B shows clearly the range of this edifice. The plan (Fig. 55) gives a continuous structure. Périgny (1911, Fig. 2) divides it into four sections. Further investigation alone will show whether there are any breaks in the façade of this building. It stands on a terrace the corner of which is clearly made out at the western end.

This building was undoubtedly for residence. It is over 412 feet long, the eastern end being a little uncertain as regards the interior plan. It is two rooms

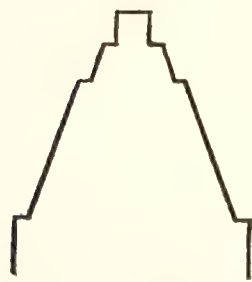


FIG. 56. — Structure D:
vault in one of the
rooms.

in width and contains about 44 rooms. With few exceptions there is no connection between the two ranges of rooms, so that the building may be said to face both north and south. The stelae on the north and the Great Plaza on this side show that the principal façade faced in this direction. Several of the rooms in each range are not symmetrically placed in reference to those on the opposite side. The rooms vary in width from 4' 5" to 6'. Further excavation will undoubtedly require changes in the placing of the doorways. One connecting passage (marked X on Fig. 55) between the north and south sides is roofed with *sapote* beams. Several of the partitions between the rooms seem more in the nature of screen walls and were clearly built after the vaulting was completed. Incised drawings appear on the walls in several cases. The tenth room from the eastern end of the northern range shows an interesting form of cap stones in the vault (Fig. 56).

Three stelae and two altars¹ are found on the north of the building. Their position is shown in Fig. 55. Stelae D¹ and D³ are plain. D², which has fallen over on its altar, is badly broken. It once had a fine design with two lines of small hieroglyphics at the top. These have almost entirely disappeared. Plates 42 and 43, 1, give photographs of some of the broken pieces of this stela. Stela D¹ seems to have lacked an altar. Stelae D² and D³ had plain altars before them.

COURT I.

This is bounded on the west by Temple E and Structure H, on the north by a portion of Structure D, on the east by Mounds 14 and 15, and on the south by Structure G.

Temple E (Périgny's "Castillo") (Plates 43, 2, and 44, 1, and Figs. 57 and 58) is the most important Structure facing Court I. It is a pyramid temple, and from the size of the foundation mound it may have been terraced, although this is not indicated either on the plan or section. The back and side walls of the building are very well preserved, as can be seen in Plate 43, 2. The two wing

¹ Stela D¹, 10' × 5' 8" × 2'.

D², unmeasurable.

D³, 7' 4" in height.

Altar D², 5' 4" in diameter.

D³, 3' 6" " " 1' 3" thick.

sections suggest the lateral extensions of Temple N. These probably each contained a single room, although there is no trace of the inner walls of the room

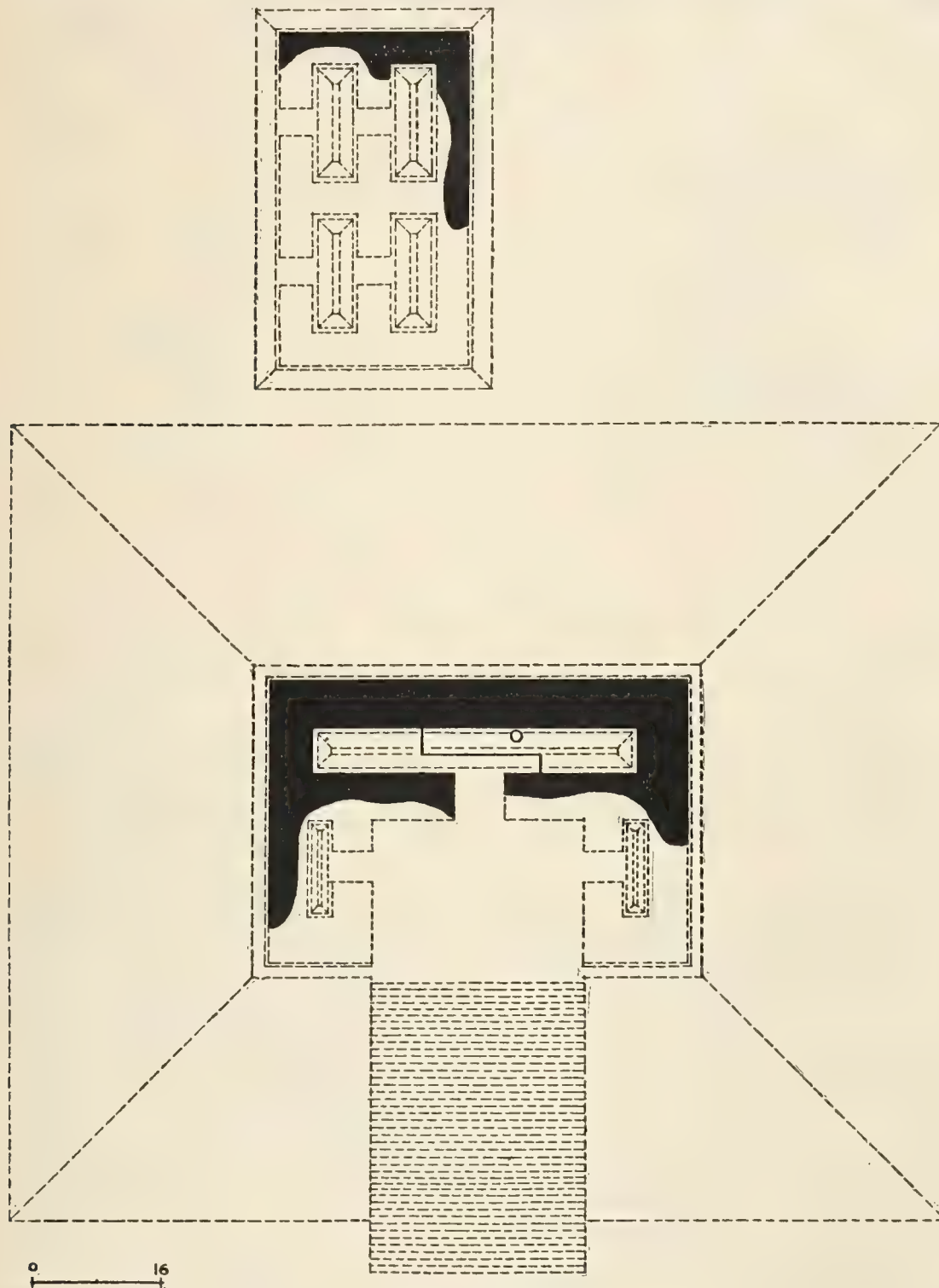


FIG. 57. — Structure F and Temple E: plan.

at the present time. These chambers are joined to the main structure and are not distinct buildings as in Temple N. The main edifice contains a single room (39' 2" $\times$ 5' 9") which is in a good stage of preservation. A fine example of a

bench, built of rubble, is found in this room (Plate 51, 4). It is 2' 4" in height and occupies the greater part of the back of the room and runs around the northern end. A basin-like depression (1' 5" in diameter and 7" deep), lined

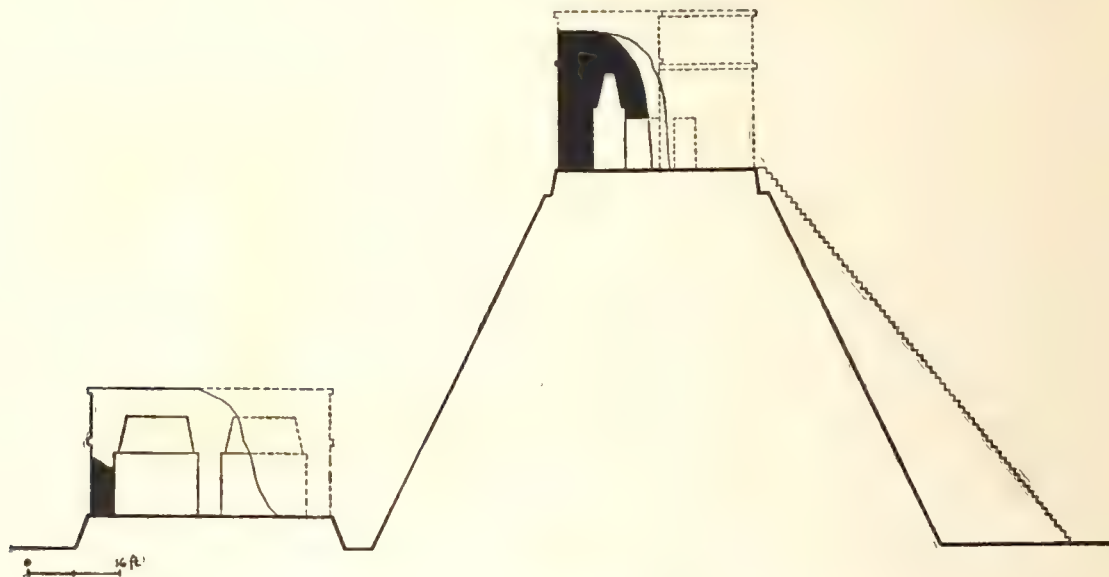


FIG. 58. — Structure F and Temple E: section.

with stucco, occurs in this bench. No remains of fire were found in this depression. Many interesting figures (Figs. 48 and 49), both incised and painted, were found on the walls of the room.

Structure F (Figs. 57 and 58), from the disposition of the débris, evidently contained four rooms arranged in two rows. It is a low building, evidently for residence, and runs almost up to the base of the foundation mound of Temple E. These two may, in fact, be correlated, the latter serving as a residence for the

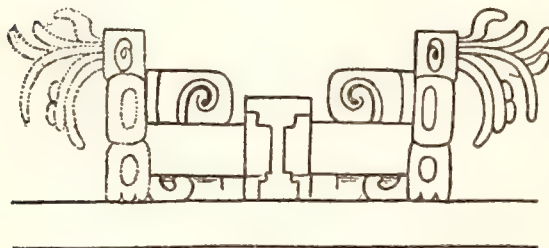


FIG. 59. — Structure F: mask on middle of northern façade.

priests who presided over the adjoining temple. Fig. 58 shows this correlation. A portion of the northern façade is still intact, showing a plain wall with a single string-course above which appear the remains of mask figures. The one in the centre (Fig. 59) is fairly complete.

Structure G. The plan of G is fairly clear (Fig. 60). It is a building of the residential type, facing evidently both

north and south, with two longitudinal rooms and a transverse room at either end. Plate 47, 1, shows its relation to the Acropolis. The northeastern corner is still in position, and the southern wall still shows the remains of a mask (Plate 51, 1) as a decoration of the upper zone of the building.

The southeastern corner of Court I is occupied by Mound 13, which runs up to the base of the Acropolis. It is clearly only one range of rooms in width.

Mounds 14 and 15 form the eastern side of Court I. The latter is a small pyramid, but no remains of a building were noted.

COURT II.

Structure H (Fig. 61), forming the eastern side of this small plaza to the south of Structure E, is a curious mound, evidently two rooms in width on the

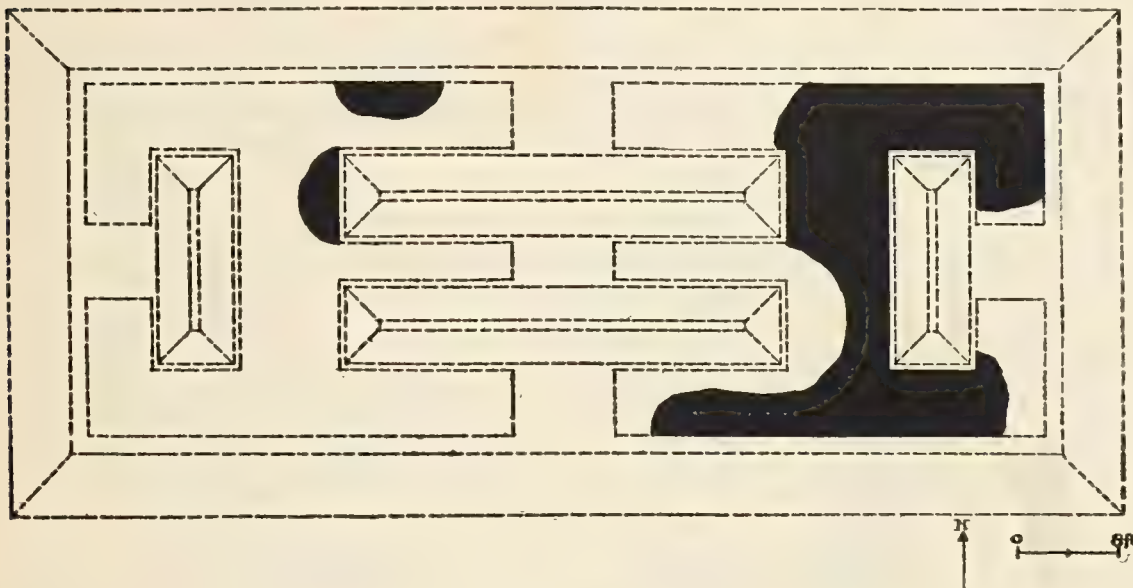


FIG. 60. — Structure G: plan.

north and a single room in width on the southern end, with entrances to the west on Court II.

Structure I (Fig. 62) occupies the southern and western sides of the same plaza. This residential building is curiously unsymmetrical, clearly showing additions and alterations. A definitive plan is impossible without extensive excavation. The one offered should be regarded purely as tentative. The southern wing, the southern wall of which is shown in Plate 43, 2, consists of two parts, one of three rooms and another to the west, of a single apartment. These all open upon the court to the north, and the eastern room also has a doorway in the end. The longer part is lower than the single-room addition, as may be seen in the drawing of a portion of the southern side of the building (Fig. 63). The outer walls have a rough batter and are plain up to the string-course. Above this there may, at one time, have been some form of decoration.

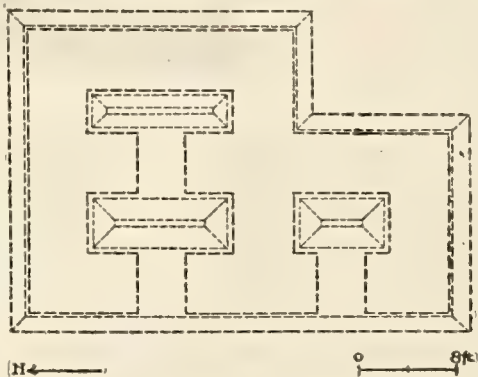


FIG. 61. — Structure H: plan.

The western wing joins the part just described. The southern part of this range probably consisted of two rooms opening to the east. North of this two-room section the plan is most difficult to make out. A single room to the east is one unit, and a second is of three rooms.

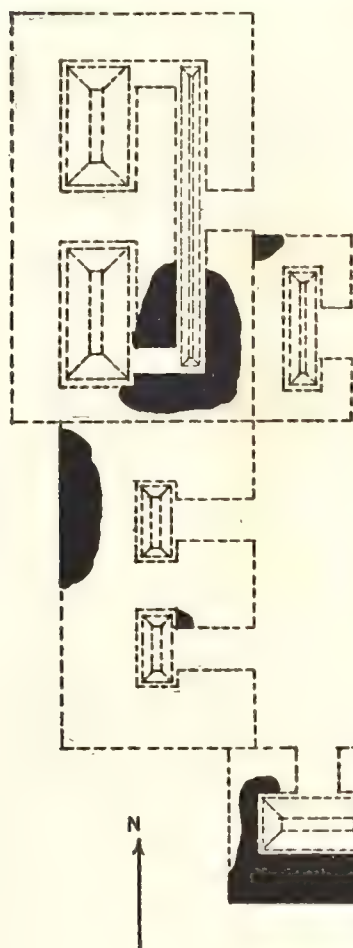
COURT III.

Court III is directly to the south of Court II and is about the same size. The unbroken façade of Structure I forms the northern side.

Structure J, evidently a building containing a row of three rooms, faces the eastern end of the court.

Structure K, forming the southern side of the court, is a building similar in plan to J. It is difficult to make out the relation of these two buildings to the slope of the Acropolis. Their position therefore in relation to the mound of the Acropolis, as shown on the large map of the ruins (Plate 32), should be regarded as tentative.

Mound 16 forms the western side of Court III. It is nothing more than a mound of earth at the present time, with no indication of the number of rooms it formerly contained. Mound 17 is to the west of 16 and at a much lower level.



COURT IV.

Court IV is the third of the small plazas to the west of the Acropolis. The mound of the Acropolis itself forms the eastern side of the court.

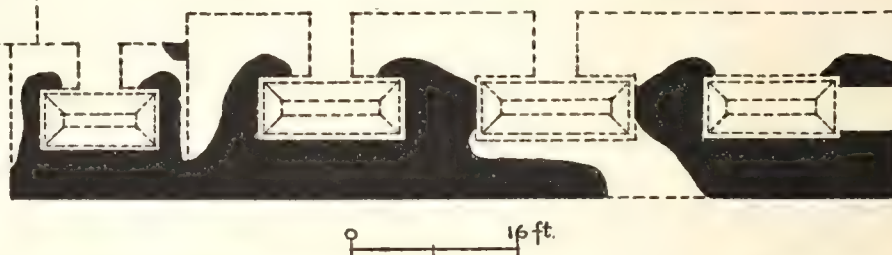


FIG. 62. — Structure I: plan.

Structure L is the building on the south. This is badly in ruins, but the remains of two ranges of four rooms each are made out. It is difficult to de-

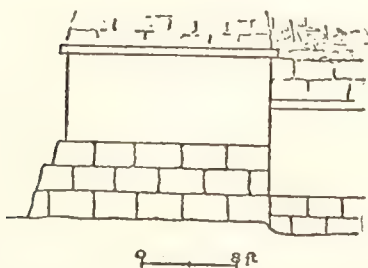


FIG. 63. — Structure I: elevation of a portion of southern façade.

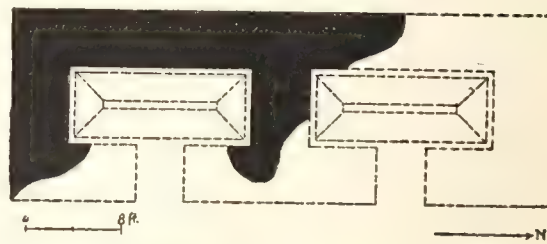


FIG. 64. — Structure M: plan.

termine which way the building faced. A well-preserved mask (Plate 51, 2) is found on the eastern end of the building.

and each of two stories. The whole makes the most complicated edifice at Nakum. Fig. 66 gives a possible suggestion of the former elevation of the whole structure.

The main temple is the best preserved of any of the buildings at this site. The northern (Plate 46, 2), western, and southern walls are still intact, together with the greater portion of the roof of the building. The doorway alone has fallen owing to the decay of the wooden lintel. The arrangement of the façade is seen in Plate 46. The walls of the temple project slightly at the corners, as is shown in Fig. 65.

The building consists of six rooms. In addition to the main entrance in the middle of the eastern façade there is also a second doorway in the front of the building opening on rooms 3 and 6 to the north. This lateral entrance is rather an unusual feature in the Maya temples. There is no communication

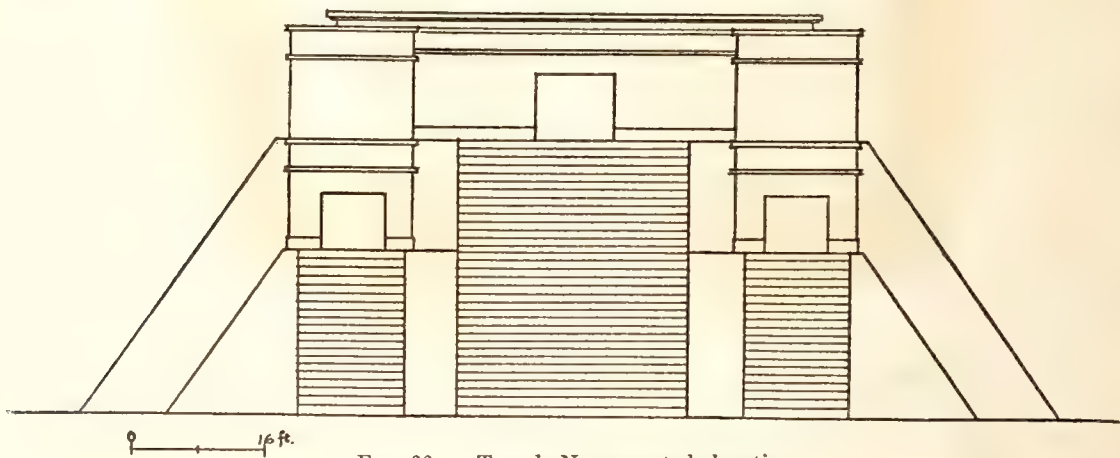


FIG. 66. — Temple N: suggested elevation.

between rooms 1 and 4 and 5 and 6. The wooden lintel in the doorway of the partition between rooms 2 and 3 is still in place. That between rooms 4 and 5 has disappeared (Plate 39, 3), but the concrete formation above has only partially fallen. The same is true of the wide lintel formerly spanning the doorway between rooms 2 and 5. Room 6 (10' 2" $\times$ 6' 6") has a circular window in the northern wall (Plate 46, 2), 2' 7" in diameter. Below the opening in the northwestern corner of the room is a bench with a sloping front.

The main temple is flanked on either side by an Annex, each of two stories in height, one room on each level. The lower chamber in each of these small buildings has an entrance from the front or eastern side of the mound (Fig. 66), which is reached by a short stairway. The upper chamber of each Annex is entered by a doorway opening upon the top of the mound on which the main building stands (Fig. 65). Plate 45, 1, shows the caved-in roof of the top story of the Southern Annex and the partially blocked-up entrances to the lower chambers in the front of the mound on either side. The outside wall of the top story of the lateral building on the south, together with its relation to the main temple, is shown in Plate 46, 1. These Annexes present several most interesting features.

The Upper Chamber (10' 6" $\times$ 6' 2") of the Southern Annex (Fig. 67) was fully excavated. The greater part of the vaulting on the four sides of the room,

together with the roof, has fallen in, but several details came to light in regard to the walls of the room (Fig. 68). The doorway is on the northern side, opening, as has been pointed out, on the top of the main mound. Two floors

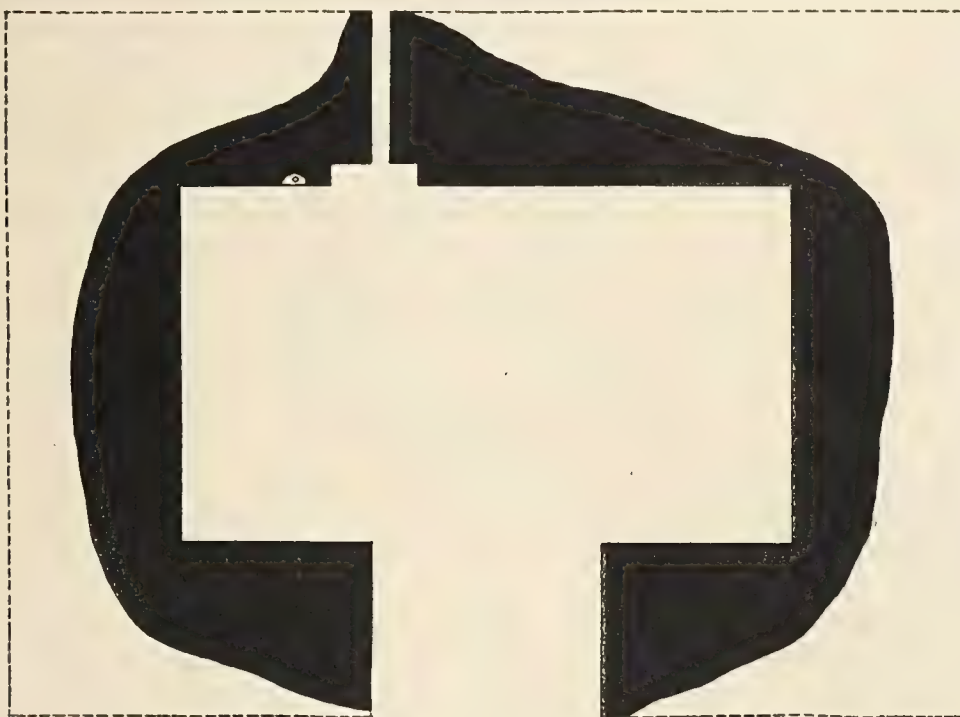


FIG. 67. — Temple N: Southern Annex, upper chamber, plan.

were observed in this room, one 2' 6" below the other. The plaster of the walls is solid and unbroken down to the lower floor. In the southern wall (Fig. 68, *a*) is a cupboard-like depression near the spring of the vault (Plate 51, 5). In the

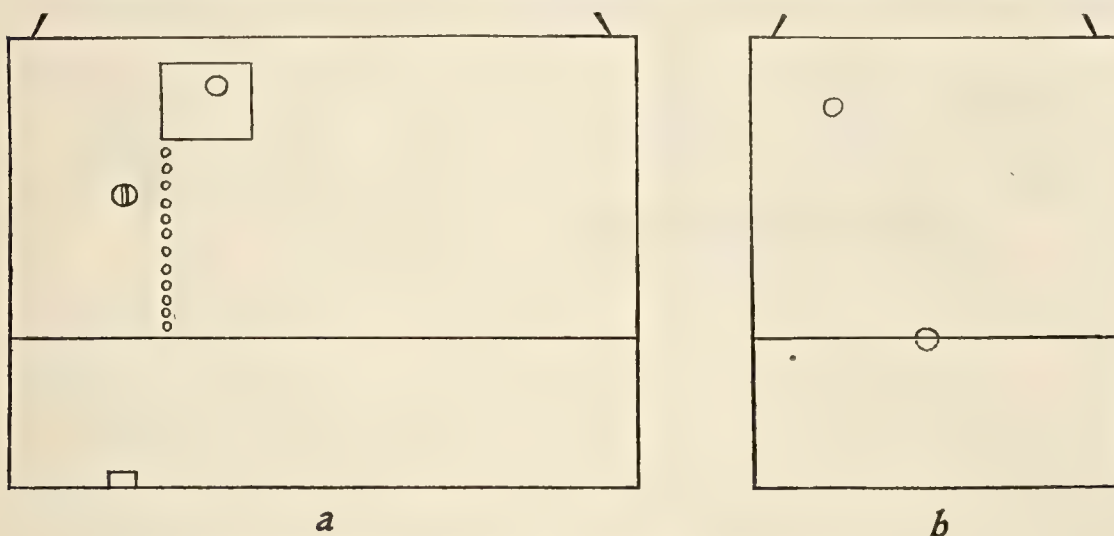


FIG. 68. — Temple N: Southern Annex, upper chamber. *a*, southern wall; *b*, eastern wall.

centre of this indentation is a small opening which communicates with the outside of the building. Below the left-hand corner of the cupboard there is a row of twelve small holes extending down to the upper of the two floors. In

the same wall is a fine example of the tie-hole (Plate 51, 3, and Fig. 69) through which runs a stick probably used for tying hangings. A game design (Fig. 49, *f*) appears on the upper of the two floors.

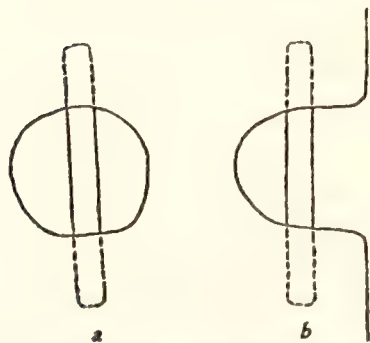


FIG. 69. — Temple N: Southern Annex, upper chamber. Tie-hole in southern wall. Scale $\frac{1}{4}$ " = 1".

Southern Annex, Lower Chamber. The doorway of this room is in the eastern wall and is well preserved. The vaulting runs north and south, while that in the chamber above runs east and west. There is little to add in regard to this chamber (10' 3" $\times$ 5' 11") other than to mention several painted designs noted on the walls (Fig. 49) which have already been discussed.

Northern Annex, Upper Chamber. The doorway is in the south, opening on the top of the main mound. The room is entirely in ruins.

Northern Annex, Lower Chamber. This room (11' 8" $\times$ 6' 4") faces east and has numerous incised drawings on the walls (Figs. 48, 49). It will be noted that the room is slightly larger than the corresponding lower chamber on the other side. It is difficult to determine the relation of the stairway to the top of the mound to those leading to the lower chambers of the two annexes.

In looking at the upper chambers of the two Annexes (Plate 45, 1) from the Acropolis mound a portion of smooth plaster flooring is noted on each side about two feet above the opening to the lower chambers. This appears owing to the fall of the outer facing of stone. This flooring is about on the level of the top of the main mound, and may show that the lower chambers were built first and the top of their roofs formed the top of the main mound. This point can be cleared up only with further excavation.

Structure O (Fig. 70) faces in part, at least, Court V. From a study of the débris and its relative height it appears to have had a small room at either end,

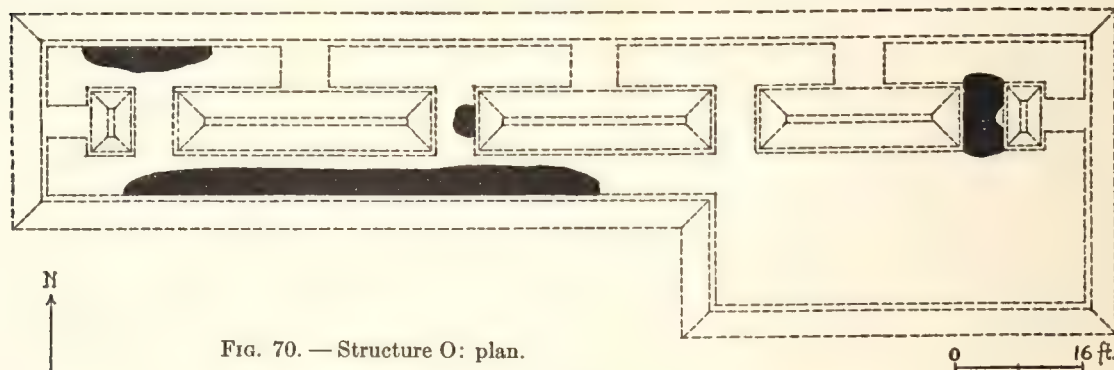


FIG. 70. — Structure O: plan.

entered from the end, with a single range of three long rooms between facing north. Plate 38, 1 and 3, shows portions of the southern wall of the building and gives a good idea of the veneer-like stone covering with the concrete beneath. The eastern third of the building widens out to the south. It is impossible to determine the interior plan of this extension. The line of the terrace on which the Acropolis stands begins to the east of O.

GROUP VI.

To the south of Structure O are several mounds which I have grouped together. Few of them show any trace of stone buildings.

Mounds 18 and 19 are parallel and run east and west. To the south of 19

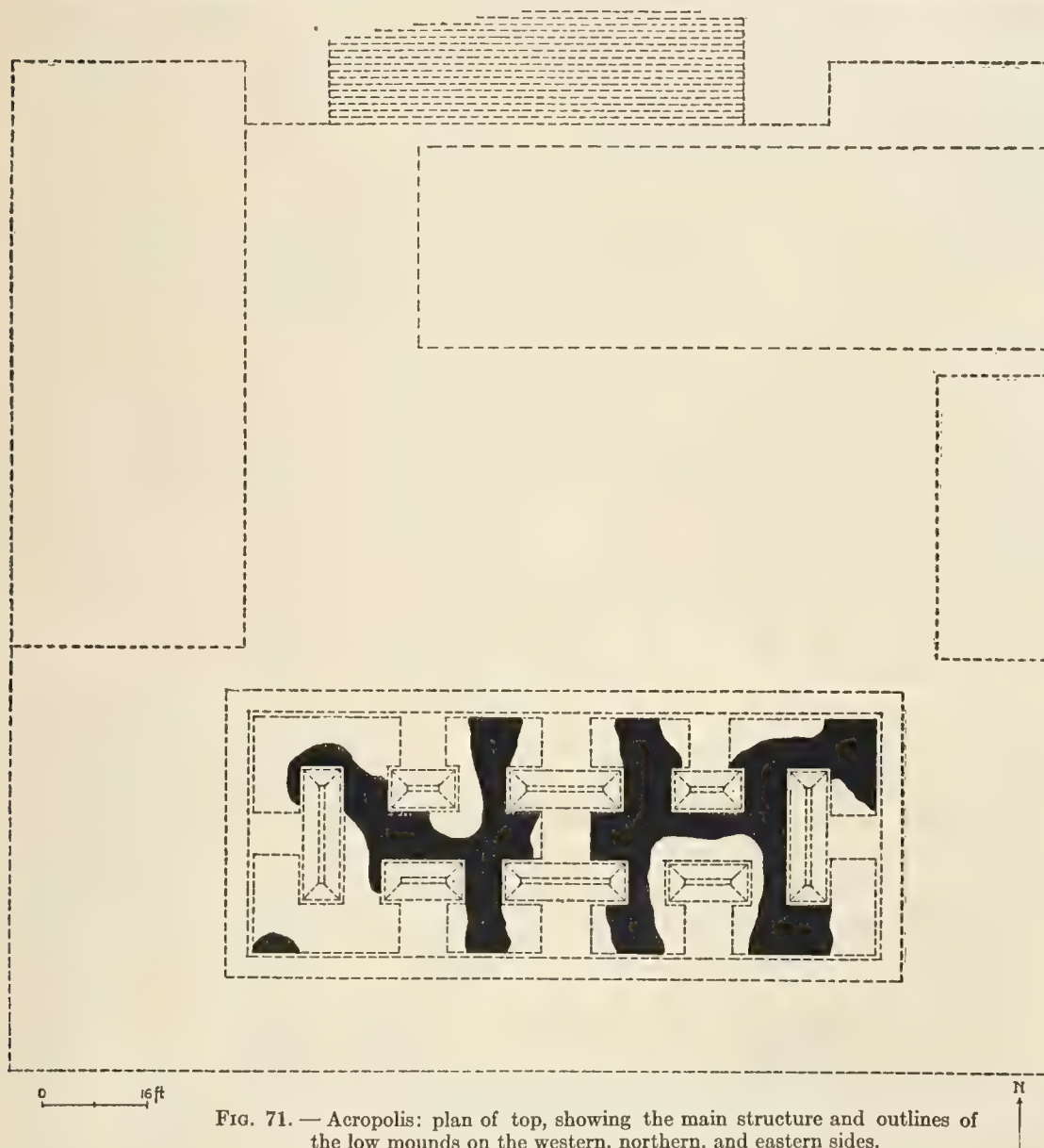


FIG. 71. — Acropolis: plan of top, showing the main structure and outlines of the low mounds on the western, northern, and eastern sides.

is **Chultun No. 1**. Mounds 20, 21, and 22 form a court. It was here that both Périgny and the Peabody Museum Expedition built their camp. The river is only a short distance to the south of Mound 21. Mound 23 is to the northeast of 22.

THE ACROPOLIS.

The Acropolis (Périgny's "Édifice principal") is the most conspicuous feature of the ruins (Plate 47 and Fig. 71). The trees on top were almost the only ones left uncut by Périgny.

This immense mound appears symmetrical and as if it were entirely artificial. Owing to the enormous mass of felled trees at the bottom of the slope, fallen there from the sides of the mound, it was practically impossible to get measurements of the base and also most difficult to make out the exact position of several of the buildings at the foot of the slopes. The plan of the Acropolis in reference to these buildings is not accurate.

The mound was probably terraced, portions of the facings alone appearing on the eastern side. The stairway to the top has entirely disappeared, although excavation would no doubt reveal its presence. It has been indicated on the northern side of the mound, but it is difficult to understand its relation to Structure G.

On the eastern side, built against the face of this great artificial hill, are two tiers of rooms. Seven were counted in the lower range. These may be made out on Plate 47, 2, but their position in relation to the slope of the mound is so uncertain that they are not shown either on the plan of the mound or on that of the site (Plate 32).

The top of the Acropolis is roughly 135 feet from east to west and 156 feet from north to south. There seem to be projections of the northern side of the top at the corners, and the stairs may have been built between. Much remains of a structure on the southern side of the top (Plate 47, 1, and Fig. 71). It probably had a roof-comb. The plan shows a typical residential type of Maya building, two ranges of longitudinal rooms with a single transverse one on either end. It was possible to obtain accurate measurements of the six rooms of the sides and the two at the ends owing to the uncovered end walls of the rooms.

The top of the mound, with the exception of the building just described, is now practically level. Structures, however, formerly occupied the other three sides of the top, as traces of very low walls and slight depressions between are noted. These buildings were probably not of stone owing to the small mass of débris found in connection with them. It is suggested that the low walls show foundations for structures of wood. A single-room building is clearly noticeable on the eastern side. Owing to the very vague character of these walls it has been thought best to leave them out of the plan of the top and indicate only their outlines.

COURT VII.

Structure P (Fig. 72), forming the southern end of this court, is a building of two rooms, one behind the other. The greater part of the back and side walls is standing (Plates 38, 2, and 48, 1). It faces west on the terrace which runs to the south of the Acropolis. The southeastern corner of this terrace is shown in Plate 48, 1.

Structure Q (Fig. 73) is built on the eastern edge of the terrace, facing Court VII on the west. It is a building about 150 feet in length and probably consisted of a single range of six rooms. The exact size of four of these could be made out owing to the fact that the end walls of the rooms are uncovered. The lintels were, as in many other cases, of wood, and consequently the front of the building is in almost complete ruin while the back wall is well preserved (Plate 38, 4).

Mound 24, just to the west of the northern end of Q, was evidently a building of one room. **Mound 25**, forming part of the northern side of Court VII, still has a portion of the southern wall in place. From the size of the mound it is evident that it had two ranges of rooms, possibly three rooms in each line. From the wall on the southern side it is evident that the building faced Court IX to the north. It is difficult to determine the relation of this mound to the slope of the Acropolis. The western wall is still in place, and it seems to come inside the line made by the base of the Acropolis mound. This does not appear on the map. Further investigation may serve to show that the rooms on the eastern face of the Acropolis are built out from the main mass of the mound and thus project to the east further than the line made by the western end of Mound 25.

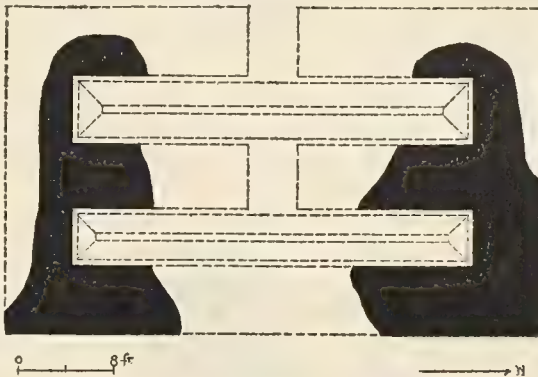


FIG. 72. — Structure P: plan.

Mounds 26 and 27 lie to the east of that just described. Both are single-roomed structures. The first evidently faces north and the second south. It is impossible to ascribe a reason for the occurrence of these one-roomed buildings.

The Acropolis forms the western side of Court VII.

GROUP VIII.

There is an interesting group of mounds to the east of Structure Q which I have classed together as Group VIII.

Mounds 28 and 29 are the southern members of the group. They are low and evidently the foundations of buildings of wood.

Mounds 30, 31, and 32 form three sides of a slight elevation which shows the remains of the terrace on the eastern side. The court made by these mounds

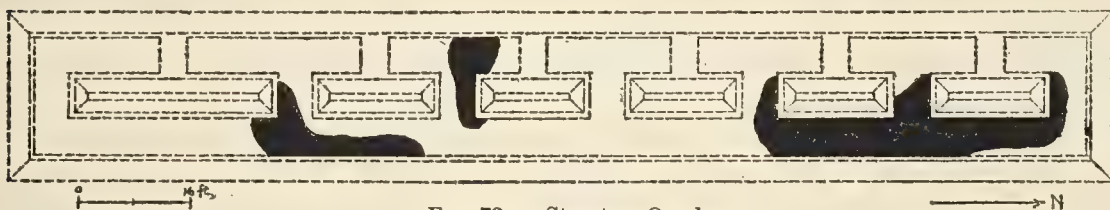


FIG. 73. — Structure Q: plan.

shelters **Chultun No. 2** (Fig. 99 and p. 192). These mounds are also low and are evidently not the remains of stone structures.

Mound 33 is much higher than those just mentioned and probably contained two ranges of about five rooms each. This building seems to have faced the north. It is not difficult to distinguish the mounds, such as 30, 31, and 32, which are clearly the foundations only of buildings and those, like 33, which are clearly the remains of the fallen buildings themselves. It is worthy of note that all the low mounds are on the outskirts of the city, usually behind much larger structures. The question of wooden buildings has never been satisfactorily

answered. Extensive excavation is needed throughout the Maya area in regard to this point. There seems to be little doubt that wooden buildings were not at all uncommon in the vicinity of the large stone structures. Many of the stairways were undoubtedly of wood, especially those belonging to the residential type of buildings. It is always difficult in archaeological work to

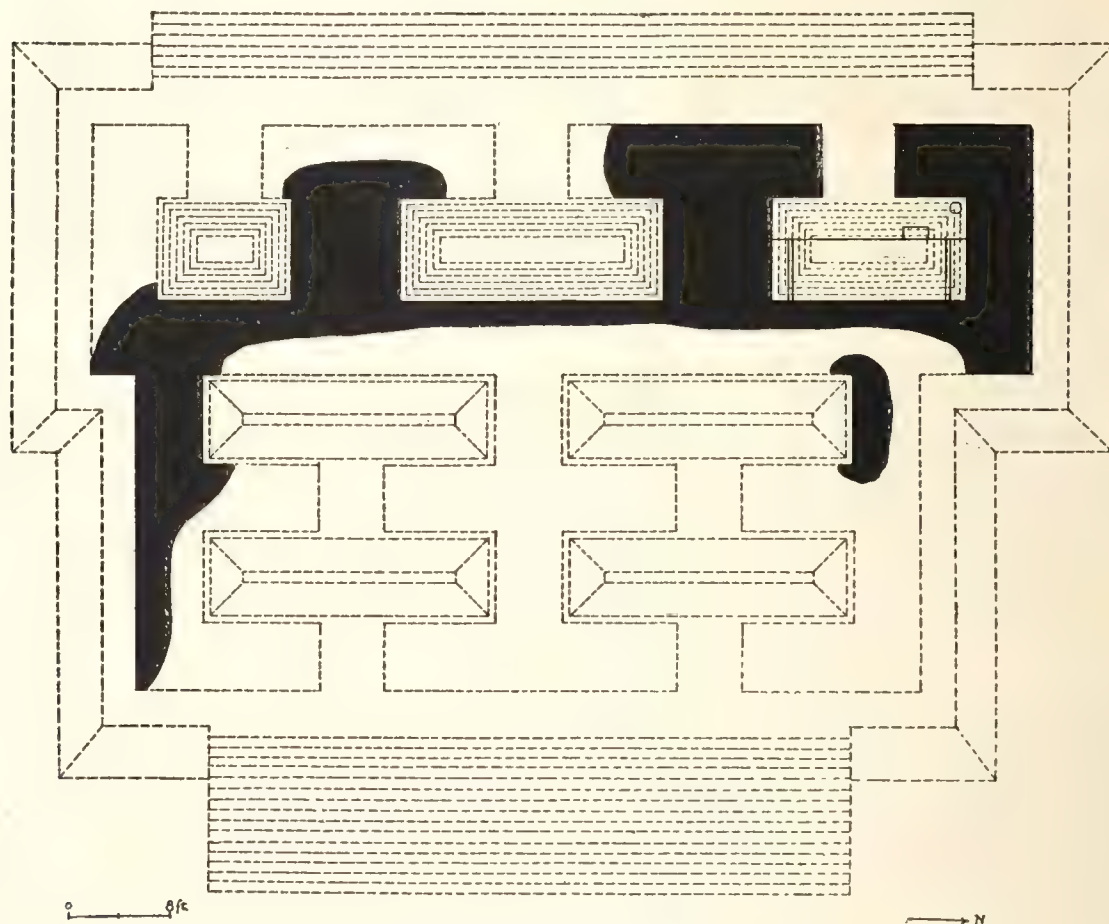


FIG. 74. — Structure R: plan.

estimate properly the place taken and the part played by buildings and objects of a perishable nature.

COURT IX.

Structure R (Figs. 74 and 75) is by far the most important edifice on Court IX, standing on the eastern side. It is evidently a building of the second type and really consists of two parts, a single range of three rooms facing west on Court IX and a later and lower addition, probably of four rooms, facing east at the southwestern corner of Court XI. The main part of the building is in a fairly good state of preservation as regards the walls of the rooms.

The northern end of the western range shows a plain wall, a string-course, and an upper decorated zone, a part of which can still be made out (Plate 48, 2). A seated figure is offering something in his hands. The end portion of a mask is suggested at the back of the figure (Fig. 76). The northern room of the main range was excavated. A fine example of a five-stepped vault is seen here (Plates

39, 2, and 48, 2, and Fig. 77), and, in fact, the same method of vaulting is noted in all the rooms of this line. Several pairs of transverse post-holes appear in this vaulting. It is to be observed that the door is not in the centre of the side of this northern room. Across the eastern side there is a bench (2' in height) with

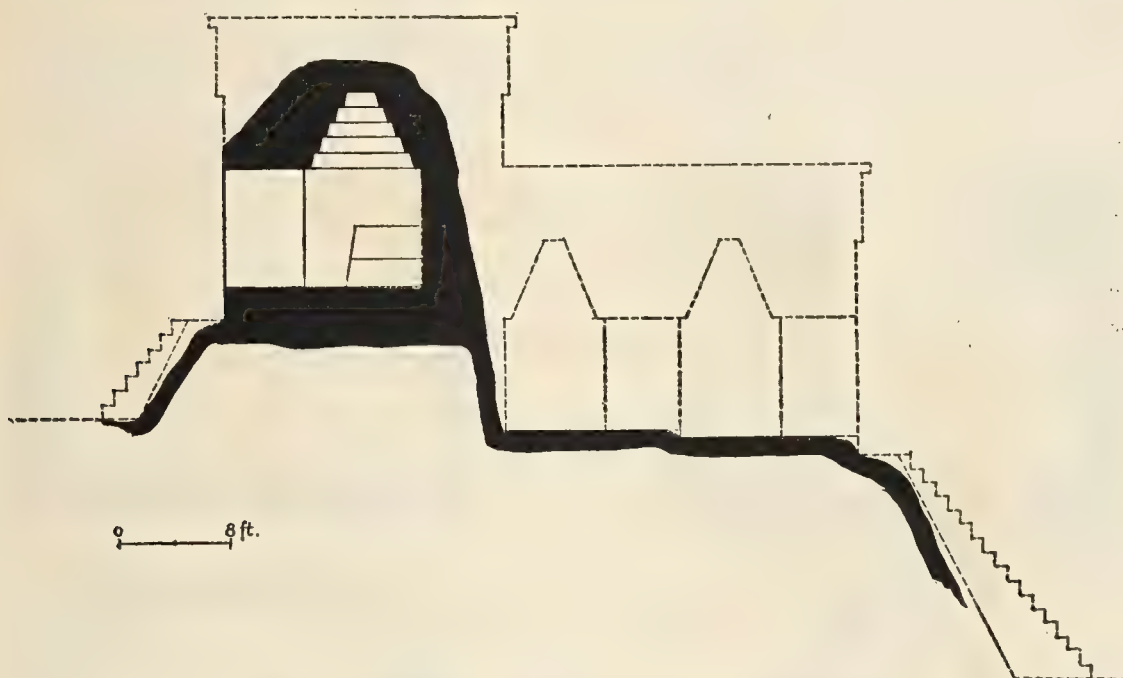


FIG. 75. — Structure R: cross-section, showing northern rooms.

armpieces at either end (Fig. 77, *a*, *c*, and *d*). A step is found before this bench. In the northern end of the room is a circular depression (5" deep, 10" in diameter) in which remains of charcoal were found. The wall above the hole in the floor shows signs of smoke. Stretching across this wall is a horizontal line of small shallow holes similar to those in the upper chamber of the Southern Annex of Temple N. Remains of burnt wood and a few sherds were found in the southern end of this room.

This main range on the east is clearly the original part of the building. An addition was made, as has been noted, to the east, shorter and lower than the first construction. The difference in the level of Courts IX and XI is clearly shown in Fig. 75. The southern wall of this addition is still in place, but it is difficult to make out the exact plan of the rooms. Part of the end walls of two rooms appear, but the easternmost rooms are in complete ruin. There is no communication between the two parts of the building.

Structure S occupies a part of the northern side of Court IX. The plan (Fig. 78) is most difficult to make out. There is clearly only one range of rooms, either two or three in number. A small portion of a mask design (Fig. 79) is still to be noted on the northern façade.

Mound 13 forms the western side of this court. This has already been described (p. 172), as have Mounds 25, 26, and 27, which form the southern side.

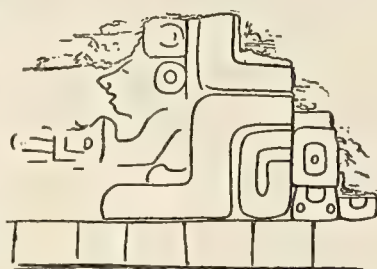


FIG. 76. — Structure R: portion of design on northern façade.

COURT X.

Directly to the north of Court IX is Court X, Structure S forming the southern side, with Mounds 14 and 15 on the west. The eastern end of Structure D is on the north.

Structure T is the only building remaining to be described. This is clearly two ranges in width with possibly three rooms in each range. The northern

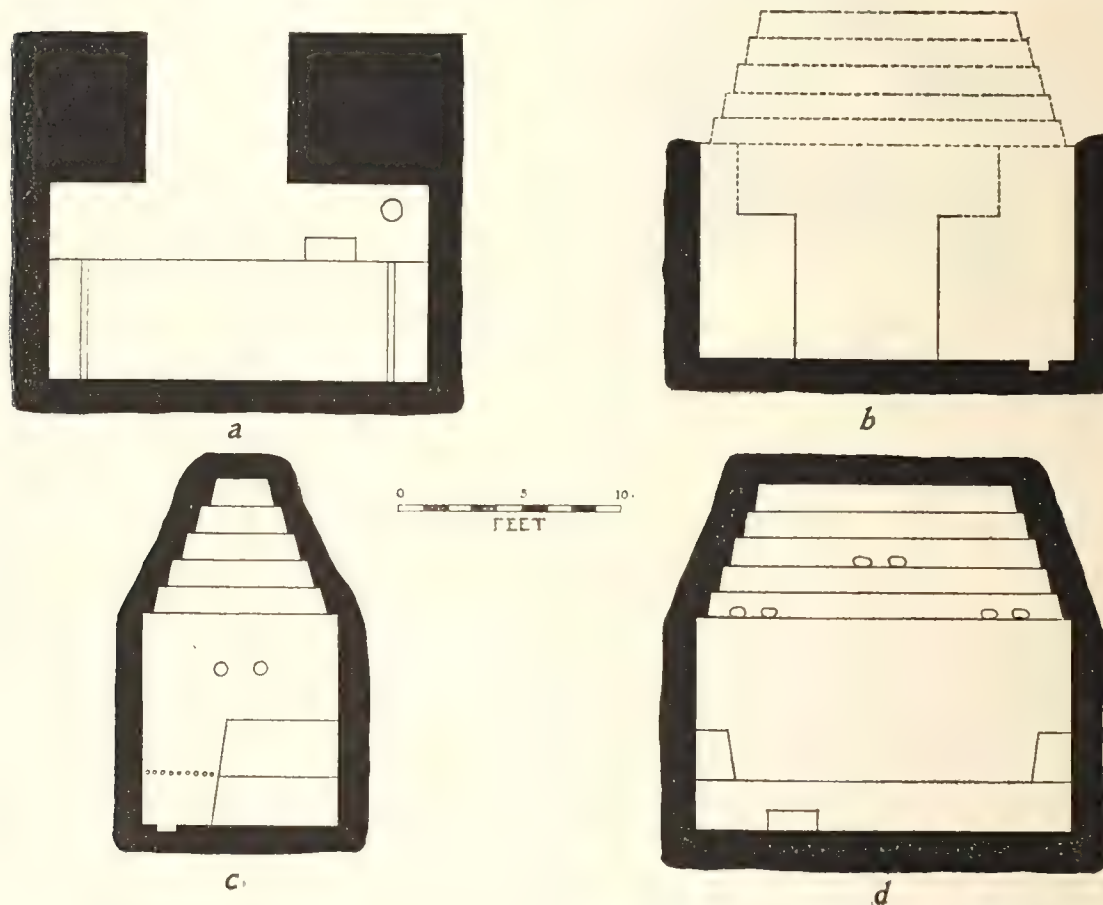


FIG. 77. — Structure R: details of northern room of western range. *a*, plan; *b*, western wall; *c*, northern end; *d*, eastern wall.

wall alone remains standing. It is difficult to determine whether this edifice faced Court X on the west or Court XI on the east.

COURT XI.

The large plaza to the east of Courts IX and X has been called Court XI. As will be noted in the cross-section (Plate 34), it is on a lower level than the two preceding courts.

Temple U (Périgny's "Temple du Roi") (Plates 49, 1, and 50, 1, and Fig. 80), on the east, is by far the most important building on this plaza. It is a temple on a high mound, the supporting structure being more like the usual Maya sub-structure than the foundation mounds of Temples C and V. Remains of terracing are clearly to be made out on the northern side. The building faces the

west. The front has fallen, but the back spring of the vault is still in place (Plate 49, 1). Part of the northern retaining wall of the stairway is well preserved.

The plan of the temple (Fig. 80) is exactly similar to that of C and V, containing a single room. The wall at the back has a slight projection, suggesting a similar feature in all the Tikal temples. There are no niches at the sides of the building, however, as at Tikal.

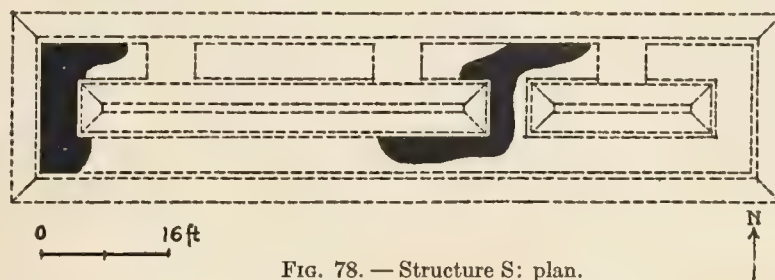


FIG. 78. — Structure S: plan.

The stela¹ in front of the stairway is the only one in the main group which is found outside the Great Plaza. The face of this monument was at one time finely carved (Plate 52, 2) with a single standing figure wearing a feather headdress. An interesting feature of this stela is the curious groove, averaging 4' 9" from the bottom, running unevenly around the three plain sides of the stone. This groove reduces the thickness of the stone to 1' 11".

Mound 33 forms the southern side of Court XI and, as I have already noted, probably faced this court. Structures R, S, and T are on the western side. Two of the ranges of rooms in R (Fig. 75) undoubtedly face this court, and the rooms in T may also open to the east.

Mounds 34 and 35 (Plate 49, 1) form the northern side of Court XI. The first probably contained three rooms in line. The plan of the second can be made out only by excavation.

GROUP XII.

East of Temple U are a large number of mounds which have been called Group XII. They may clearly be correlated with the neighboring structure, indicating the residences of the priests who worship in this temple. These structures cannot all be considered in the same class, as their heights differ.

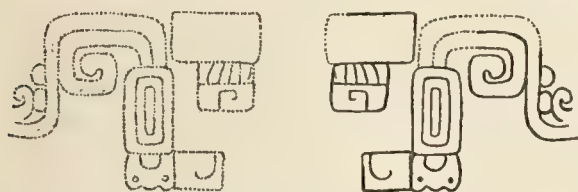


FIG. 79. — Structure S: portion of mask design on northern façade.

Mound 36 is to the southeast of Temple U. It is very low and probably never had a stone building on top. Mound 37 joins the substructure of the temple and is much higher than 36 and may show the remains of a stone building.

Mounds 38, 39, 40, and 41 are about the same height as 36. Mound 42 is much higher and should be classed with 37. Mounds 43 and 44 are hardly perceptible, rising only about 1' 6" from the general level of the ground.

¹ Dimensions: 13' 9" × 4' 9" × 2' 9".

COURT XIII.

Directly to the north of Court XII and slightly larger is Court XIII. These two quadrangles rank next to the Great Plaza in point of size. Panorama 2 (Plate 35, 2) shows the limits of Court XIII.

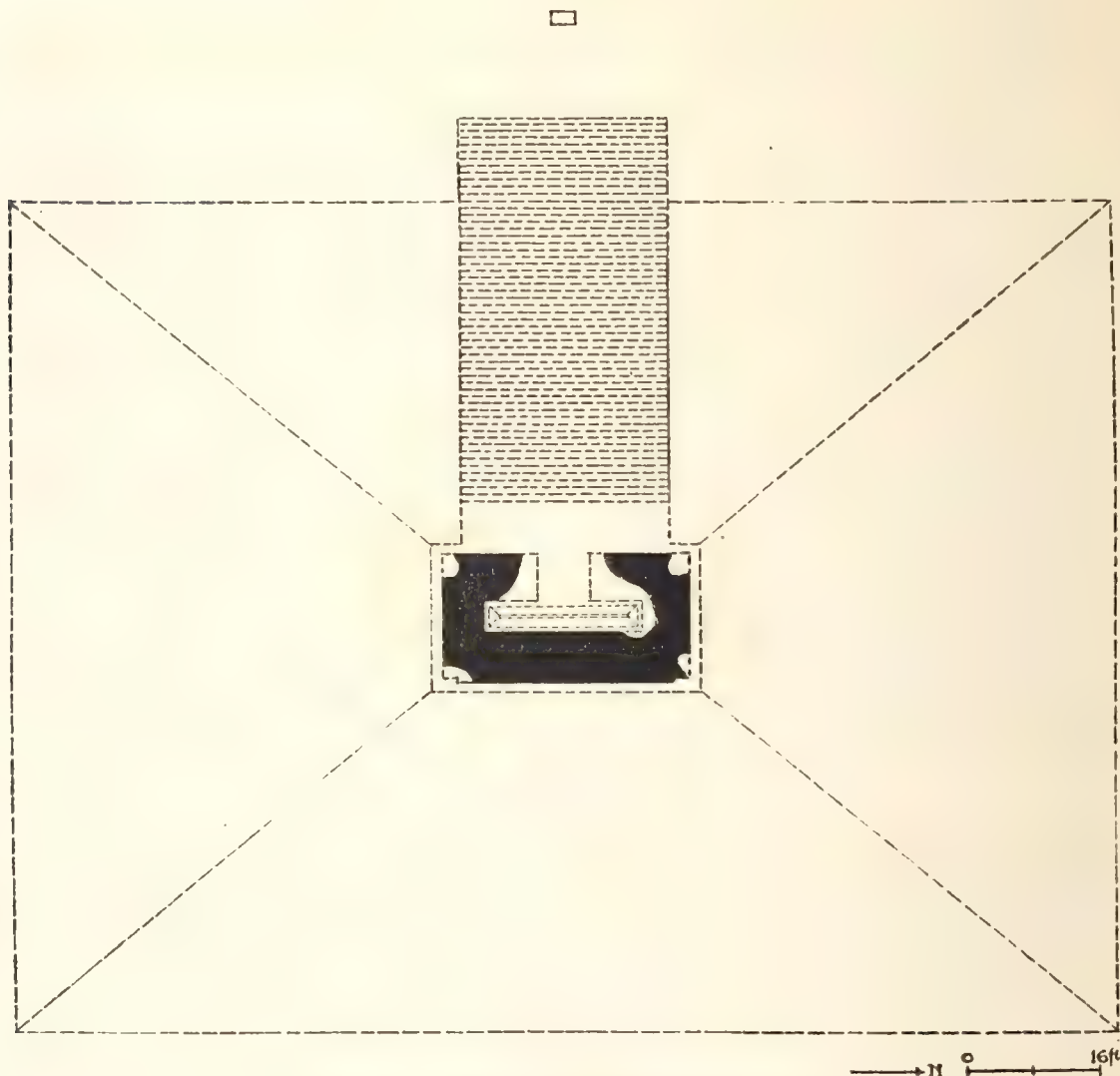


FIG. 80. — Temple U: plan, showing single stela.

Temple V (Périgny's "Petit Temple") (Plates 49, 2, and 50, 2, and Fig. 81), on the eastern side, is the most important structure facing this court. It is clearly of the temple type and is typical of several of the Nakum buildings in that the mound on which the structure stands has almost vertical sides rather than the sloping pyramid form so usually associated with the Maya temples. The back view of this building (Plate 50, 2) shows the perpendicular mound. The temple also has only a single room and is in no way remarkable. It is almost exactly similar in plan to Temples C and U. The front is entirely gone, and the back wall is cracked from top to bottom, possibly by an earthquake. Numerous small holes were observed through this back wall.

At either corner of the western side of the foundation mound is a lower mound

symmetrically placed in reference to the main structure. No remains were noted on these lateral mounds. These have been called **Mounds 45 and 46**. They may have served as foundations for buildings similar in purpose to the lateral chambers in Temple E and the Annexes of Temple N.

Mounds 34 and 35 occupy the southern side of Court XIII. The back of Temple A (Plate 40, 2) forms the entire western side of the court. The northern side of this court has no buildings. It is the only one of the large plazas which

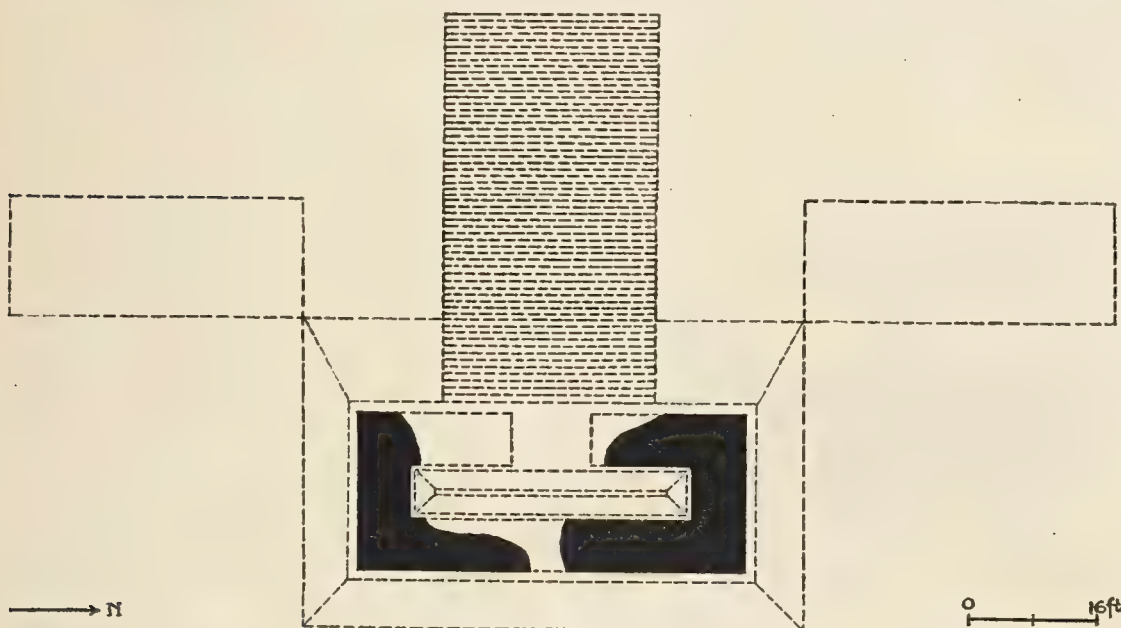


FIG. 81. — Temple V: plan.

is not bounded on all four sides by buildings. Panorama 3 (Plate 36), looking west from E, gives a good idea of the heights of Temples U and V.

GROUP XIV.

There finally remains of the city proper to be mentioned a small group of mounds some distance to the northeast of Temple V. **Mounds 47 and 48** are low and unimportant. **Chultun No. 3** (Fig. 100) is to the southeast of 48.

NORTHERN EXTENSION.

It is possible to draw an analogy between the Northern Suburb at Tikal and the Northern Extension at Nakum. In the former site there is no physical connection between the main group and the northern outpost, whereas at Nakum the buildings and mounds at the north of the city are connected with the main group by two parallel lines of low mounds.

The plan given of this Extension (Plate 33) should be regarded as in every way tentative. There are several points which will need clearing up, and many details will doubtless have to be changed on further investigation.

The beginning of the Extension stretching to the north is at the corner of

the terrace to the north of Temple C, at the northwestern corner of the Great Plaza. From the northern side of this temple to the northern side of the mound on which Structure W stands it is about 2,000 feet. For the first 950 feet the

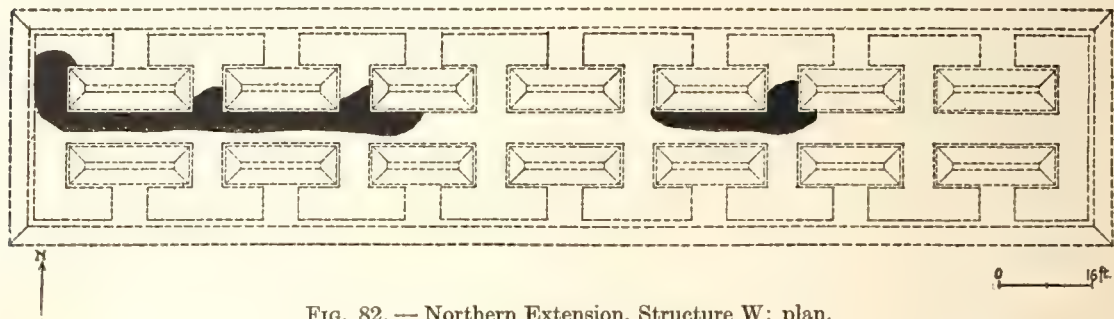


FIG. 82. — Northern Extension, Structure W: plan.

distance between the wall mounds is about 75 feet. This Extension may be considered in the nature of a raised road, as the ground falls away on both sides.

About 800 feet from the southern end of the eastern line of mounds a large platform is reached which supports several low mounds, probably the foundation of wooden structures. To the north of this are two mounds at right angles, in the corner of which is a *chultun*. The line continues about 160 feet to the remains of a pyramidal temple structure which is entirely in ruins. In front of the stairway on the west of the pyramid is a single undecorated stela with its altar, also plain. The only unusual feature is the fact of the stela standing beside rather than behind the altar. The line continues about 325 feet beyond, almost reaching the large platform to the north. These mounds are higher than those to the south of the pyramid temple and are evidently the remains of stone buildings.

The western line of mounds is more broken and uneven than that to the east. Both continue parallel for about 1,050 feet, where the western line ends after widening out into a platform. To the west a group of low mounds arranged



FIG. 83. — *Chultun* 2: Pottery fragment overlaid with black plaster. $\frac{1}{4}$.

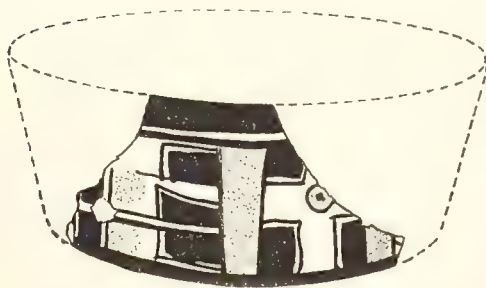


FIG. 84. — *Chultun* 2: Fragment of pottery vessel. $\frac{1}{2}$.



FIG. 85. — *Chultun* 2: Pottery vessel. $\frac{1}{2}$.

in a court is made out, and a long and a short mound connect this with the northern platform. This northern elevation which closes the end of the Extension is roughly 250 feet square. Near the northern edge is a low mound running north and south.

Structure W (Fig. 82) is located on the southern side of this elevation. This building contains fourteen rooms arranged in two rows of seven each. Several of the back walls of the northern range can still be made out. With the exception of Structure D it is the largest building of the residential type found at this site.

It is impossible to determine the purpose of this long Northern Extension. It is easy to say it was for guarding the city. Several early writers have laid stress upon the idea of defence in the construction of the Maya cities. With the exception of a few sites in southern Guatemala there is little evidence to show that any means were taken by the Maya architects to ward off the attack of hostile forces.

MINOR ANTIQUITIES.

In pursuance of the policy of the Museum which I have mentioned, it was deemed better to confine our operations to a general investigation of the ruins as they now appear rather than to undertake any excavation.

The northern room in Structure R was cleared, and a few sherds were found near the level of the floor. Sherds were also found in clearing the single room in Temple E.

Chultun 2 in Group VIII was dug out down to the smooth plaster of the floor, and it yielded a small but interesting collection of objects. Potsherds

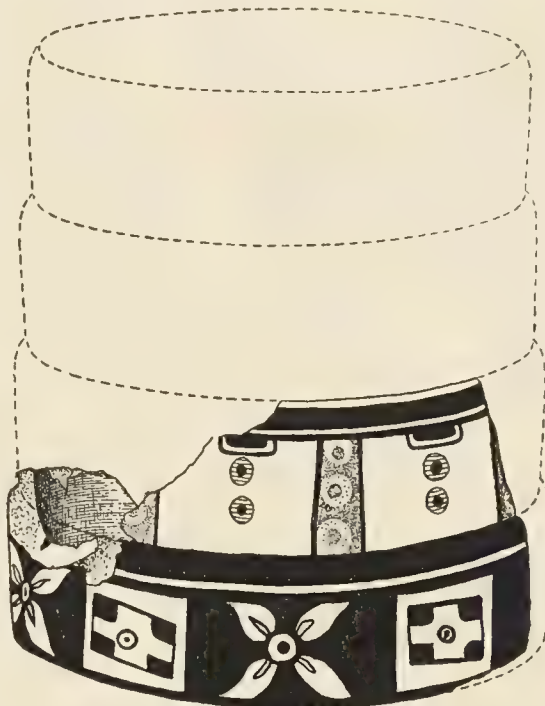


FIG. 86. — *Chultun 2*: Portion of pottery vessel with suggested restoration. $\frac{1}{2}$.



FIG. 87. — *Chultun 2*: Fragment of modelled ware. $\frac{1}{4}$.



FIG. 88. — *Chultun 2*: Fragment of modelled ware. $\frac{1}{4}$.

illustrating practically all the forms of pottery decoration met with in the Maya area were found, including plain, incised, painted, and modelled ware.

A single small sherd (Fig. 83) shows a thick layer of black plaster with incised design overlaying the pottery base.

Figs. 84 and 85 show a common shape of bowls found in *Chultun* 2. Fig. 85 gives an idea of a form of decoration noted on several sherds. The restoration of the jar shown in Fig. 86 is justified by the fact that sherds were found with this terrace-like form.

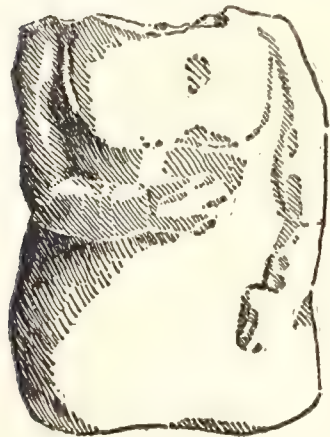


FIG. 89. — *Chultun* 2: Figurine of seated female. $\frac{1}{4}$.

Two pieces of pottery should be especially mentioned, both fine examples of modelled ware. Fig. 87 shows an elaborate feather design and the head of a figure suggesting the Long Nose God. Fig. 88 is a human face in profile with feather headdress and a necklace. Maler found a few sherds of a similar ware at Yaxchilan.



FIG. 90. — *Chultun* 2: Figurine of seated female. $\frac{1}{4}$.

Several figurines representing a seated female figure with one arm lying in the lap and the other across the breasts (Figs. 89-91) suggest similar forms from some mounds at Kamela, high up on the Salinas River. A standing figure (Fig. 92) with curiously thick lips and hands clasped in front of the body is also similar to a form found at Kamela. This is in the form of a whistle. Another whistle (Fig. 93) represents an owl.

The head of a delightful old woman with her hair parted in the middle, with wrinkled brows and cheeks and sunken jaws, is shown in Fig. 94. A portion of a second head (Fig. 95) exactly similar to the first and evidently from the same mould was also found in the same *chultun*. This has a perforation at the top which was evidently broken off on the first head.

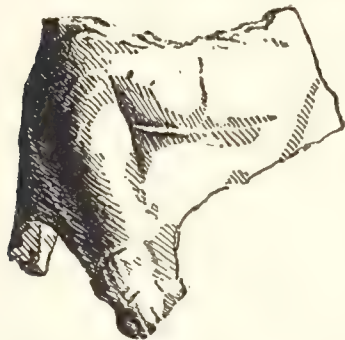


FIG. 91. — *Chultun* 2: Portion of female figurine. $\frac{1}{4}$.

Fig. 96 cannot be explained. It formerly consisted of two standing figures. A circular opening with a finished rim is at the side near the bottom.

In addition to these objects which have been mentioned, *Chultun* 2 yielded several spear

points and a crude mould for a figurine.

A few pieces of pottery were found near the base of Stelae C and N.²

CHULTUNES.

The word *chultun* was used by Mr. Edward H. Thompson in his paper, "The Chultunes of Labna" (1897). It is a Maya word, meaning an excavation or a cistern in stone, from *tšul*, to clean, and *tun*, stone. Perhaps the best definition of a *chultun* is "a more or less circular subterranean cistern-like reservoir."

The *chultun* is a direct result of the stony character of the country, where a comparatively slight deposit of soil overlies a continuous bed of limestone.



FIG. 92. — *Chultun* 2: Pottery whistle of human figure. $\frac{1}{4}$.

Practically anywhere in the northern and central part of the Maya area the stone may be reached at no great depth. It is not difficult to excavate these cisterns out of the comparatively soft limestone. Few have been previously reported outside the northern part of Yucatan, and, as far as I know, none has been described. In Yucatan they seem to have a close connection with the water supply.

Chultunes are very common in the Peten area. Thirty-nine of these underground chambers are shown on the map (Plate 31) exclusive of those found in connection with the large groups of ruins. The distribution of mounds and *chultunes* is unequal in the various sections of the region. Yaloch, near the site of Holmul and Seibal 2d, seems to be a centre. La Honradez, with the large number of small mounds stretching along the trail to the north, is another centre. A third is near Nakum, and a fourth near Tikal. There seems therefore to be some correlation between the ruins of major importance in this area and the distribution of *chultunes* and mounds of minor importance.



FIG. 93. — *Chultun* 2: Owl whistle. $\frac{1}{4}$.



FIG. 94. — *Chultun* 2: Head of old woman. $\frac{1}{4}$.

The correlation of *chultun* and single mound along the trails is to be noted. It might be supposed that here we have the remains of a structure and the source of its water supply in the subterranean chamber. This correlation exists, however, quite as often near the natural water-holes or small streams as at some distance from a natural water supply.

In addition to the *chultunes* stretching in long lines from city to city, one or more were noted in close proximity to most of the important sites, — eight at Holmul, four at Nakum, three at Tikal, and one at La Honradez. There seems to be no distinction in construction or in function between those found at some distance from the large ruined groups and those occurring within the confines of a large site.

There is evidently no close connection, as in Yucatan, between the water supply and these underground rooms. In fact, they are frequently found near sites where there is an abundant supply of water throughout the year. In almost no case do we find any drainage into them. They are usually found on ground slightly higher than that of the surrounding country. In this respect they differ from those in Yucatan.

Another point against their use as storage for water is shown in the fact that in several the rock from which they are excavated is porous and the walls do not seem in all cases to have been covered with an impervious layer of plaster. That they were used in some cases for the storage of maize and other foods is possible, as they are generally dry and would be suitable for such a purpose. That some were used for burial places is very probable.

The *chultunes* of this area fall naturally into two types. The first is the

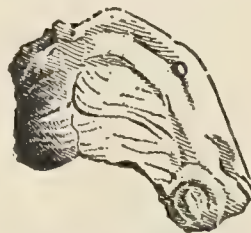


FIG. 95. — *Chultun* 2: Portion of head of old woman. $\frac{1}{4}$.

cistern-like reservoir similar to the second type in Yucatan (Fig. 97), a chamber or well dug out of the limestone with wall and roof of the natural stone but with

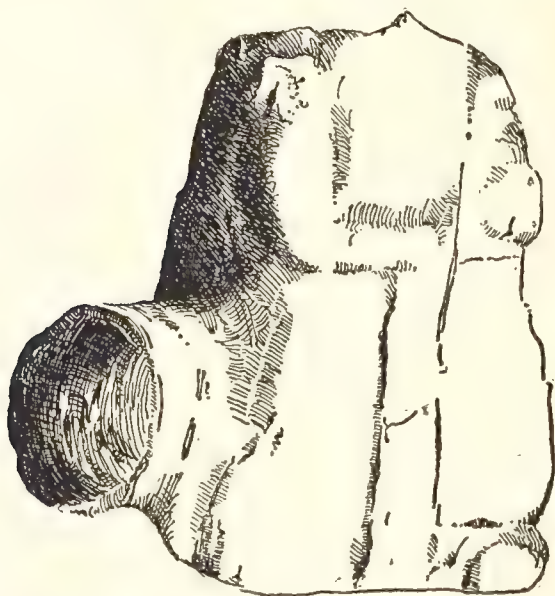


FIG. 96. — *Chultun 2*: Pottery figure with round opening near bottom. $\frac{1}{4}$.

no trace of walls or vault of worked stone. Good examples of this class are *Chultunes* 1 and 2 at Nakum. The second type is far more common in the Peten area, the lateral-chambered *chultun*. Here, in addition to the shaft-like well, is a chamber opening from the bottom of the shaft (Fig. 98). This may be said to be the typical northern Guatemalan type.

It is not intended at this time to treat exhaustively the *chultunes* of the Peten district, but mention should be made of one of the three reservoirs examined at Yaloch (Fig. 98), a few miles from the ruins of Holmul. A remarkable collection of pottery was taken from this chambered *chultun* by Dr. Davis of Belize and presented by

him to the Museum at Bristol, England. The Peabody Museum Expedition went to the bottom of this chamber and unearthed a number of most interesting pieces of pottery. Two tall jars were found with no bottoms, the edges at the base showing that they were made purposely in this way. There were evidences that the chamber had been used as a burial place. An altar-like niche opening from the northern side of the chamber may have been used for offerings. The three *chultunes* excavated at Nakum are all made in the solid limestone with no trace of artificial walls.

Chultun 1 is found in Group VI. It is a cistern type with no lateral chamber. The entrance is 1' 4" in diameter, its greatest width 4' 11", and its depth 7' 3". Very few pottery fragments were noted in the earth dug from this well.

Chultun 2 (Fig. 99) is located in Group VIII. A large flat stone, evidently a piece of the cover, was found in excavating this subterranean chamber. This *chultun* has a circular opening 1' 6" in diameter and widens out as you go down. At the bottom the diameter is 5' 11". It is 6' 6" deep from the top of the stratum of limestone to the floor of the well. Excavation in this chamber brought to light an interesting collection of objects. These have already been described (p. 189). Crude pottery fragments were found throughout the mass of earth which filled the *chultun*. Practically all the objects of interest were encountered in the last eight inches of earth.

Chultun 3 (Fig. 100), in Group XIV, is the only one noted at Nakum with any trace of lateral chambers. The subterranean room seems to have been only partially artificial. A cave-like opening in the limestone was probably enlarged.

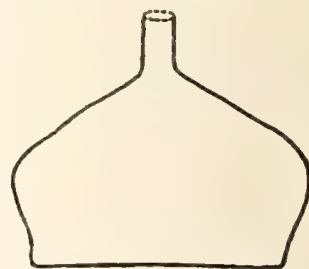


FIG. 97. — Labna, Yucatan: Section of *Chultun*. Type 2.

The two side chambers in this *chultun* are irregular in outline. Nothing of importance was found here.

From the fact that *Chultun* 2 was relatively so rich in specimens and Nos. 1 and 3 yielded nothing, it seems clear that we cannot say that the burial of objects

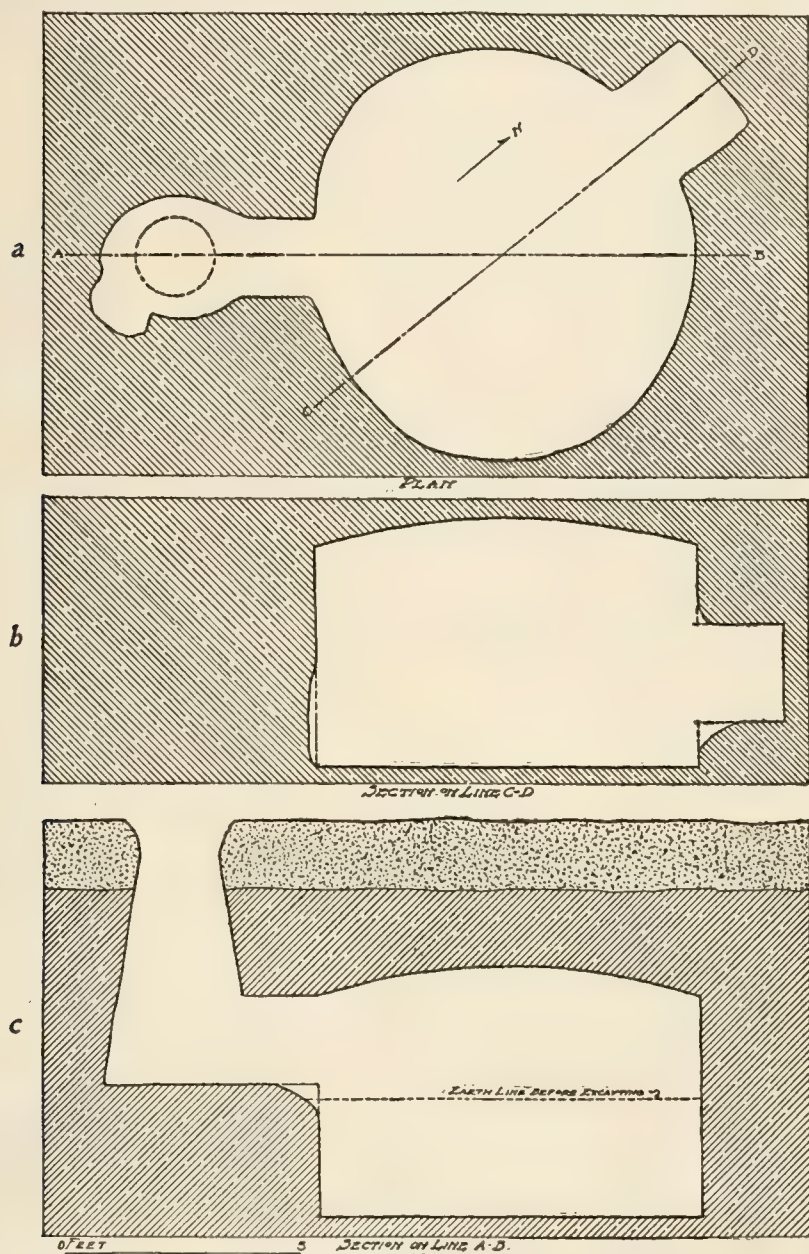


FIG. 98. — Yaloch, British Honduras: *Chultun* 1, lateral chambered type.

was common in these underground chambers. *Chultun* 1 of Yaloch, which contained so rich a collection of pottery, seems to be another exception to the rule that the *chultunes* should be regarded primarily as storage places and not as places of burial.

A single *chultun* was noted in the Northern Extension, and Mr. Merwin found a group of three *chultunes* at El Encanto. None of these was explored.

RUINS OF EL ENCANTO.

The description of the ruins of El Encanto, about sixteen miles northwest of Nakum, may well appear in the report on the larger group. I am indebted for the following details to Mr. Merwin, who visited this site in 1910-1911. The principal group of structures consists of the truncated pyramidal mound (Fig. 101) upon which are the remains of a small building with two rooms. Built against the western slope of the pyramid is a second, formerly, no doubt, the substructure of the building.

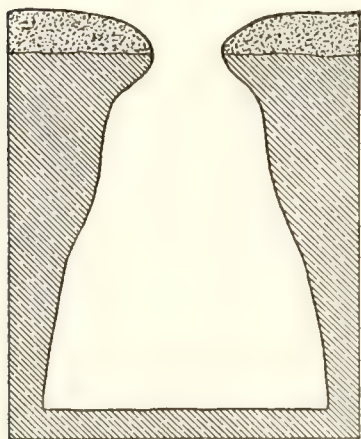


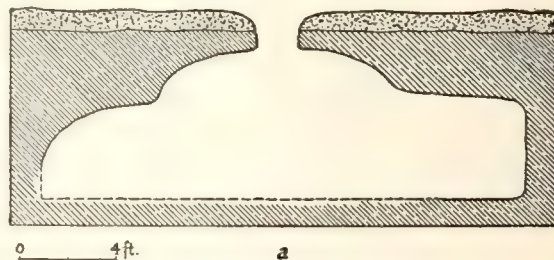
FIG. 99. — Nakum: *Chultun* 2, section, cistern type.

The principal feature of interest of this site is a stela ($4' 4'' \times 1' 8'' \times 9\frac{1}{2}''$), already mentioned (p. 163), standing about 12 feet in front of the pyramid. It has been badly injured probably by *chicleros* in addition to weathering. The front once had a sculptured design. The legs of a human figure together with the mask panel on which he stands can with difficulty be made out. There are the remains of a hieroglyphic

inscription on either side. That on the south consisted of 14 double glyphs which are almost entirely obliterated. The inscription on the northern side (Plate 53) is a little clearer, but a study of the glyphs is disappointing. It is clearly not an initial series.

The stela stands on a terrace ($200' \times 95'$) which runs along the western side of the main mound. It is covered with a flooring of plaster. Near the northwestern and southwestern corners of this terrace is a small mound, probably the foundation for a wooden building. To the north of the large pyramid is a second structure with no remains at the present time of a building on top.

To the east of the main pyramid is a group of three *chultunes*.



TIME CONSIDERATIONS.

The only secure basis for a consideration of Maya chronology is the study of the dates appearing upon the hieroglyphic inscriptions. As these are absent at Nakum, it is difficult to treat properly the relative age of these ruins compared, first, with those of the same area and, secondly, with those in other parts of the Maya region. It is dangerous to lay too much stress upon chronology based mainly upon a study of the art and architecture. Dr. Spinden (1912) has been very successful in this

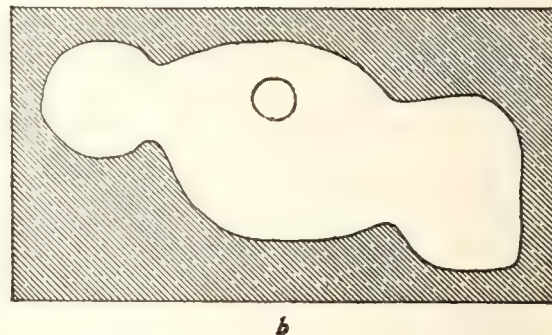


FIG. 100. — Nakum: *Chultun* 3, lateral chambered type.

respect in his study of the chronological development of the Copan stelae. It is a far more difficult problem when the same method is applied to the development of various details of plan and of decoration in the Maya area as a whole. As it is often impossible to determine whether the trend in decoration is from realism to conventionalism or from conventionalism to realism, so it is often

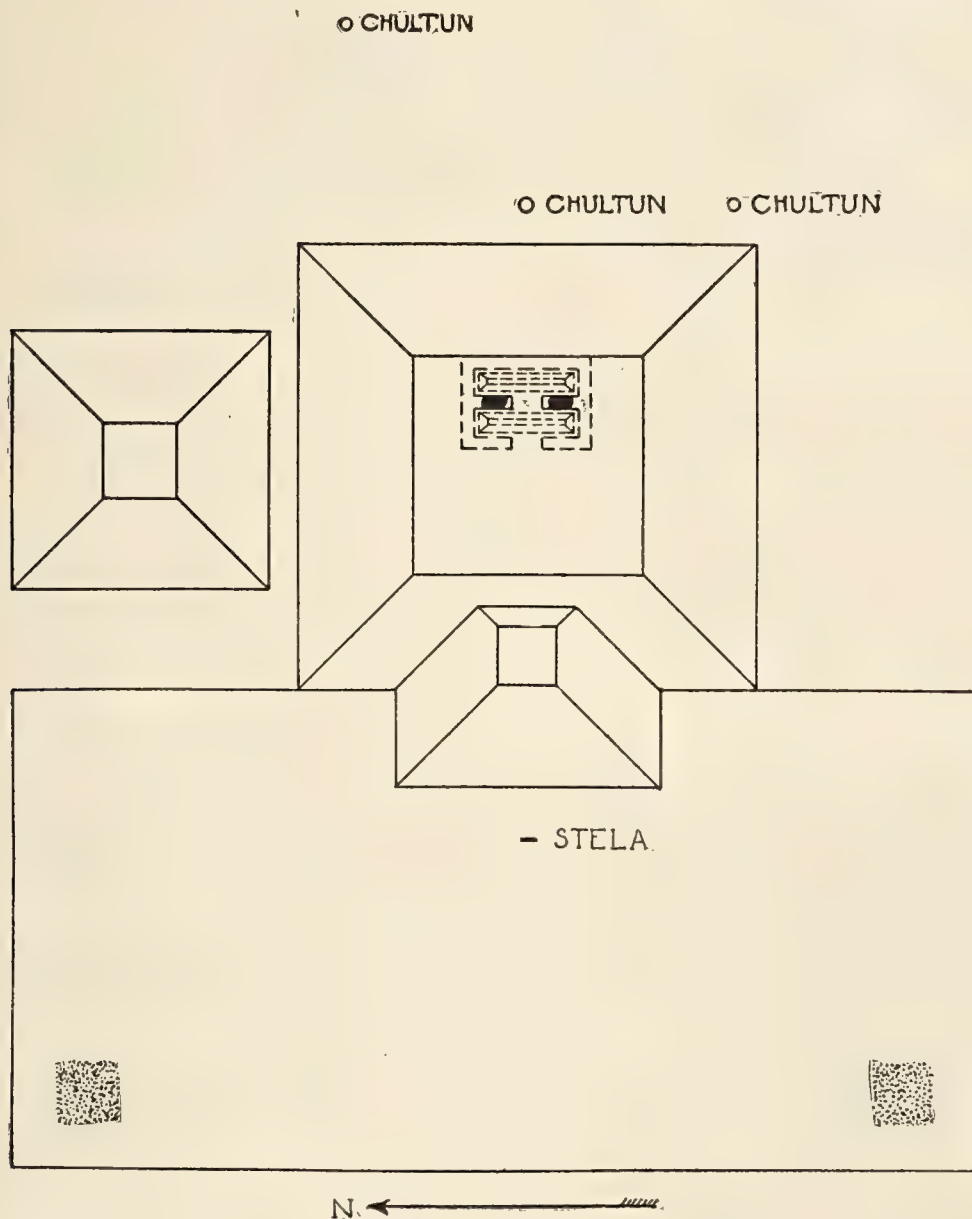


FIG. 101. — Ruins of El Encanto: plan.

impossible to determine whether an advance in ideas of construction from our point of view corresponds to a similar advance in point of time. I have used this questionable method in my discussion of the development of the roof-comb (p. 157). Here we have some help from the study of the dates of the inscriptions. Chichen Itza with its light lattice-like roof-comb we know to be later than Palenque with its double-walled comb, and Palenque in turn later than Tikal with its massive superstructure.

From a study of the dates alone, Tikal is given the first place in point of

time in the Maya cities, and I have already expressed an opinion that the Peten area in which both Tikal and Nakum are located is the oldest seat of the Maya culture yet found. But various considerations, perhaps I should say feelings, in the mind of the explorer who has visited both Tikal and Nakum tend to place Nakum later than Tikal. The student of Classical Archaeology, with his system of interlocking dates and his literature, scoffs at the vagueness as regards the dating in American Archaeology. There is good reason to hope, however, that with the further elucidation of the Maya hieroglyphic writing and the study of successive strata like that now being undertaken in the Valley of Mexico, together with careful and extensive excavation of the ruined cities, the time will come when we can avail ourselves of something definite as regards the period of the beginnings and of the various epochs in the rise and fall of the Maya culture.

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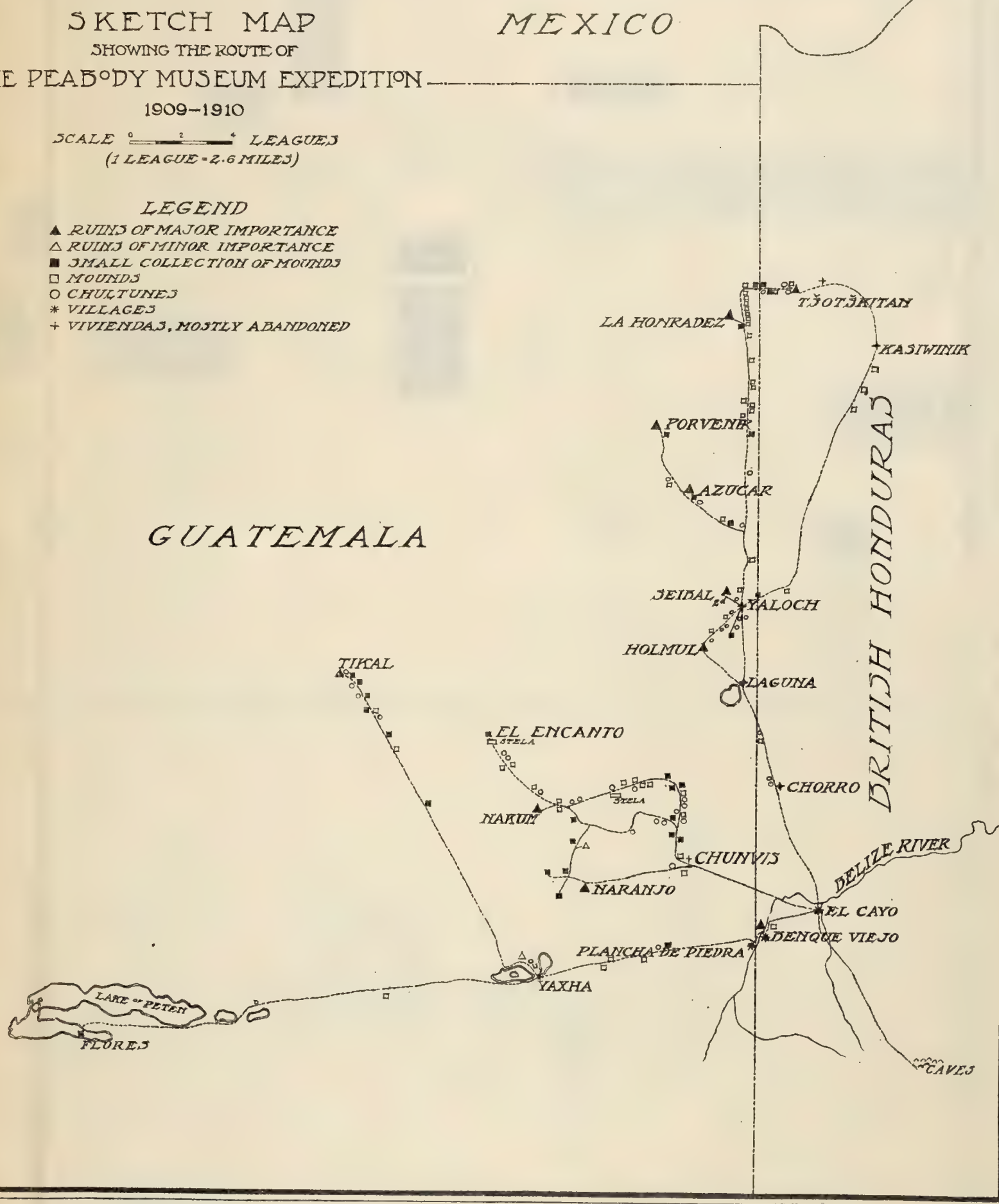
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SKETCH MAP
SHOWING THE ROUTE OF
THE PEABODY MUSEUM EXPEDITION
1909-1910

SCALE 0 — 2 — 4 LEAGUES
(1 LEAGUE = 2.6 MILES)

LEGEND

- ▲ RUINS OF MAJOR IMPORTANCE
- △ RUINS OF MINOR IMPORTANCE
- SMALL COLLECTION OF MOUNDS
- MOUNDS
- CHULTUNES
- * VILLAGES
- + VIVIENDAS, MOSTLY ABANDONED



NAKUM: SKETCH MAP SHOWING ROUTE OF THE PEABODY MUSEUM EXPEDITION OF 1909 - 1910.





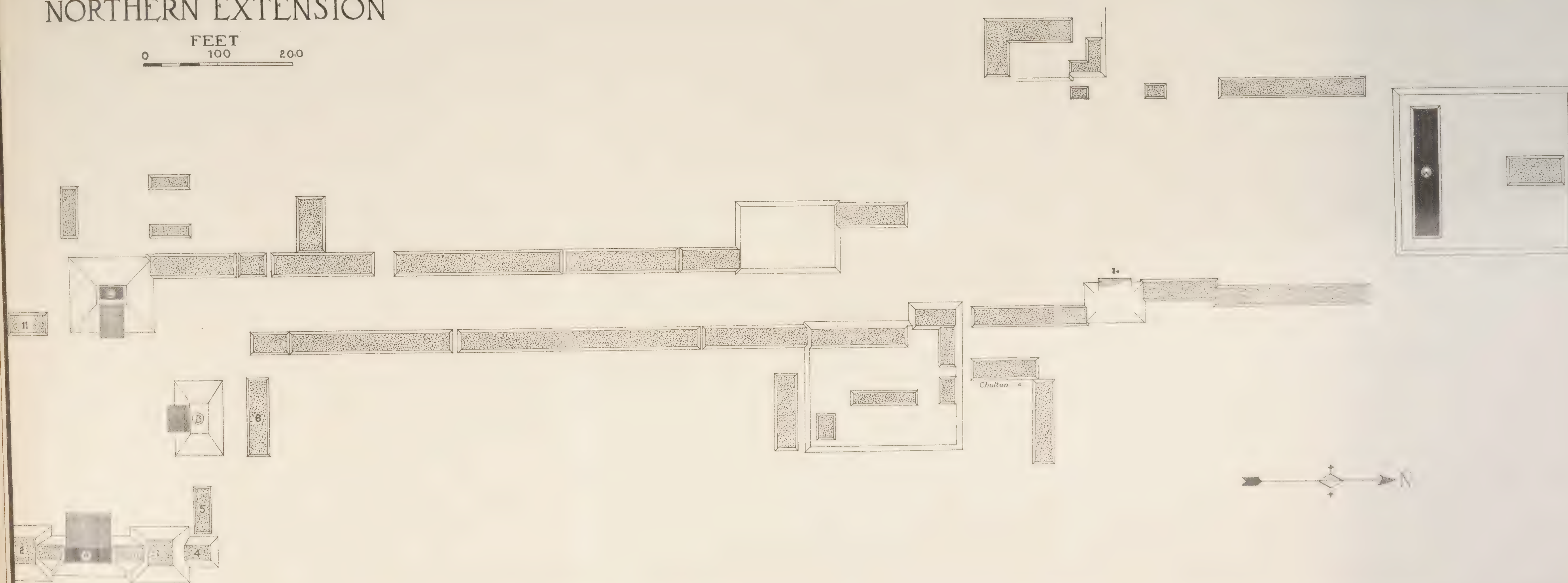
NAKUM A PLAN OF THE RUINS

FEET
0 50 100

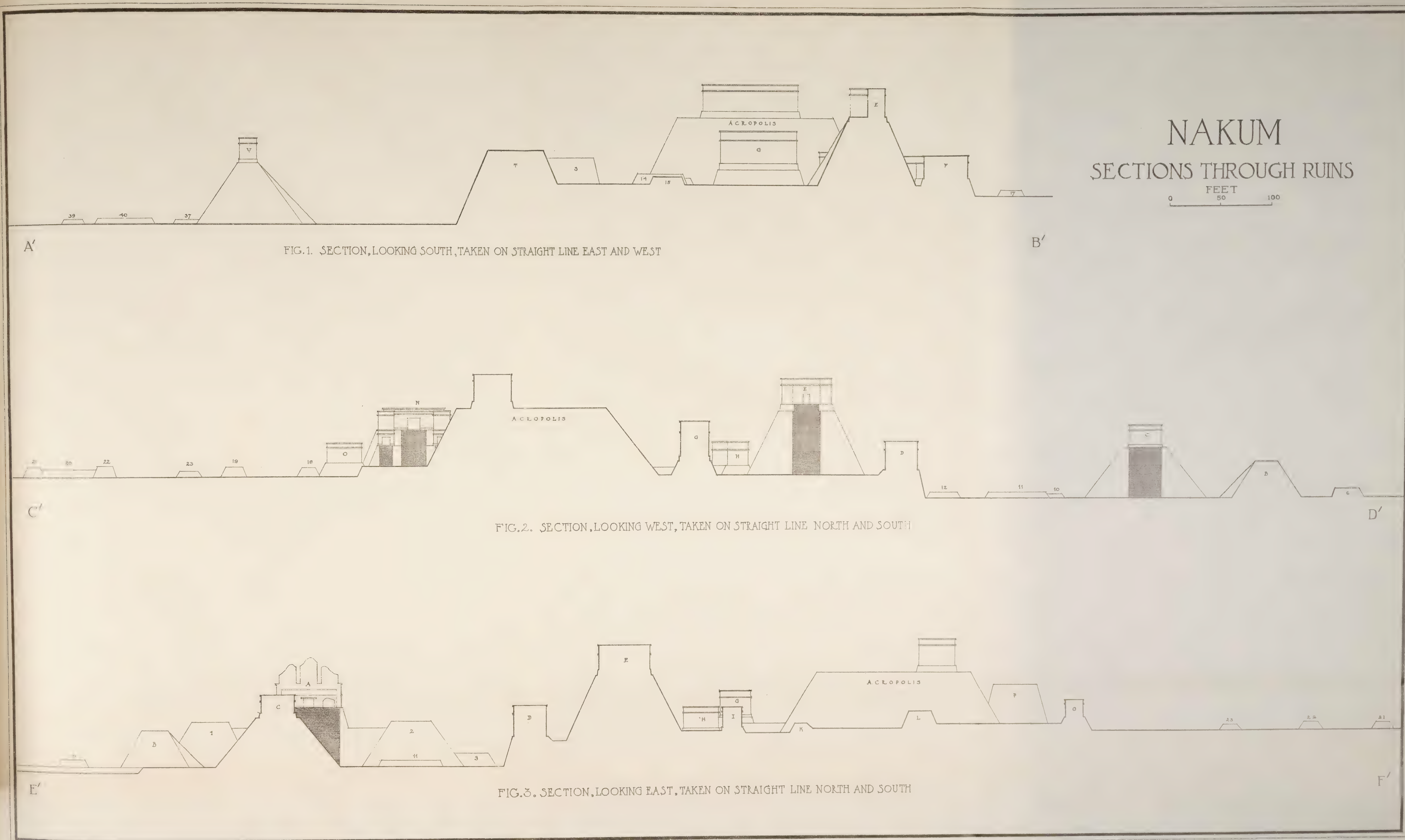
NAKUM

SKETCH MAP OF NORTHERN EXTENSION

FEET
0 100 200



NAKUM: SKETCH MAP OF THE NORTHERN EXTENSION.





1. The curve starts at the origin (0,0).



2. The curve starts at the origin (0,0).



V A U [D T



1, NAKUM: LOOKING SOUTH

Q ACROPOLIS G E N



2, NAKUM: LOOKING WEST AND

ACROPOLIS
G

E

D

C



TH FROM MOUND B. (1)

B

A

V



NORTHWEST FROM TEMPLE U. (2)

R

S

U

D

V

A



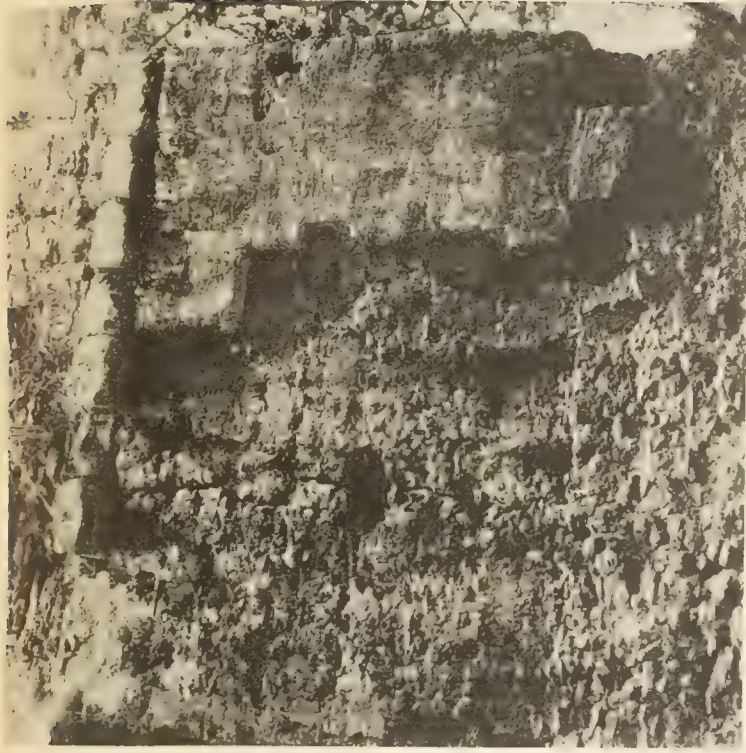
NAKUM: LOOKING EAST FROM TEMPLE E. 



NAKUM: LOOKING NORTH FROM THE WESTERN END OF STRUCTURE D. ④



1, STRUCTURE O; PORTION OF SOUTHERN WALL.



2, STRUCTURE P; PORTION OF SOUTHERN WALL.



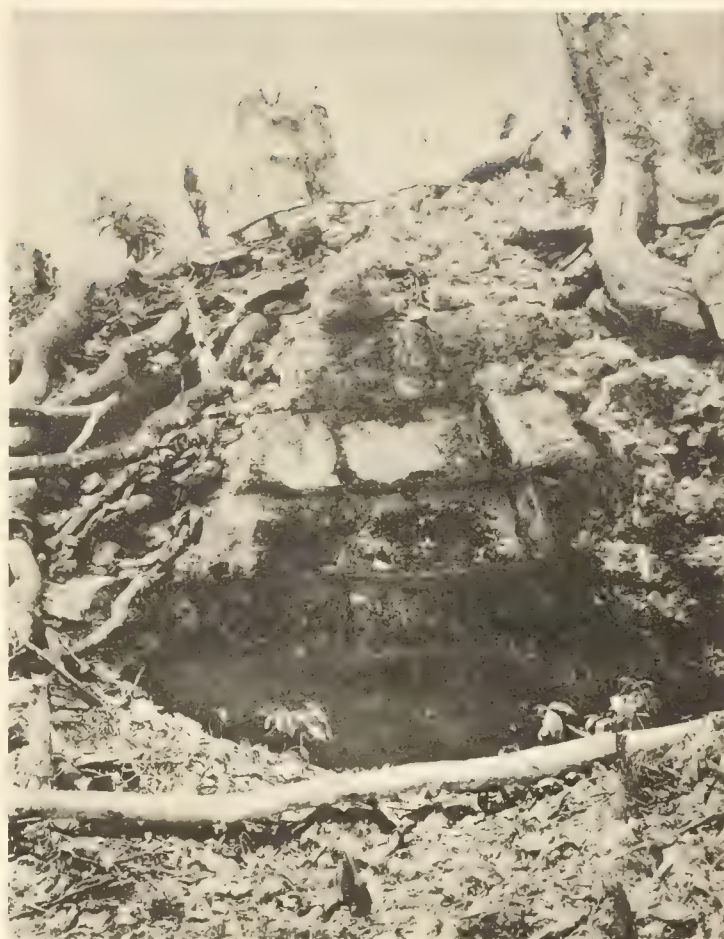
3, STRUCTURE O; PORTION OF SOUTHERN WALL.



4, STRUCTURE Q; PORTION OF EASTERN WALL.



1, TEMPLE V; NORTHERN END OF CHAMBER.



2, STRUCTURE R; WESTERN RANGE, NORTHERN END OF
MIDDLE ROOM.



3, TEMPLE N; ENTRANCE TO SOUTHWESTERN ROOM.



4, TEMPLE A; CENTRAL DOORWAY, SHOWING WIDTH OF INNER ROOM.



1, NAKUM: TEMPLE A; FRONT OR WESTERN FAÇADE.



2, NAKUM: TEMPLE A; BACK OR EASTERN FAÇADE.



1. NAKUM: ONE OF THE ALTARS AND PORTIONS OF TWO OF THE STELAE IN FRONT OF STRUCTURE B.



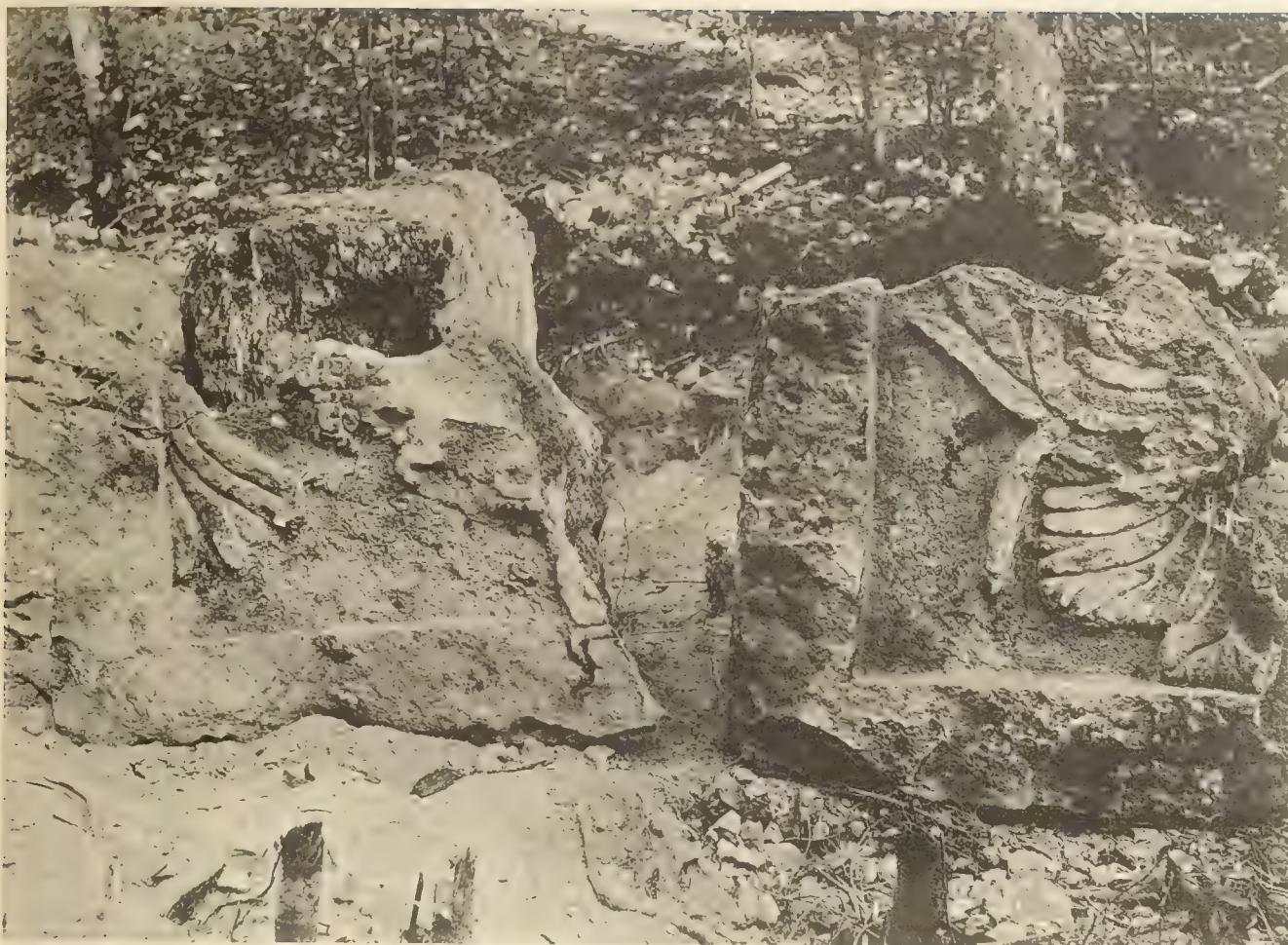
2. NAKUM: TEMPLE C; FRONT OR EASTERN FAÇADE, AND STELA C.



1, NAKUM: FRAGMENTS OF STELA D2.



2, NAKUM: FRAGMENTS OF STELA D2.



1, NAKUM: FRAGMENTS OF STELA D2.



2, NAKUM: TEMPLE E FROM THE SOUTH, AND SOUTHERN WALL OF STRUCTURE I.



1, NAKUM: TEMPLE E; FRONT OR EASTERN FAÇADE.



2, NAKUM: TEMPLE U; FRONT OR WESTERN FAÇADE, SHOWING STELA U.



1, NAKUM: TEMPLE N FROM THE ACROPOLIS, SHOWING THE MAIN BUILDING AND THE TWO ANNEXES.



2, NAKUM: TEMPLE N FROM THE SOUTH, WITH CORNER OF THE ACROPOLIS AND SOUTHERN WALL OF STRUCTURE O.



1, NAKUM: TEMPLE N; SOUTHWESTERN CORNER, SHOWING MAIN BUILDING AND SOUTHERN ANNEX.



2, NAKUM: TEMPLE N; NORTHERN FAÇADE OF MAIN BUILDING.



1, NAKUM: ACROPOLIS FROM THE NORTH, AND STRUCTURE G.



2, NAKUM: ACROPOLIS FROM THE EAST, SHOWING TWO TIERS OF ROOMS ON THE FACE OF THE MOUND.



1, NAKUM: STRUCTURE P, AND SOUTHEASTERN CORNER OF TERRACE.



2, NAKUM: STRUCTURE R; NORTHERN ROOM IN WESTERN RANGE.



1, NAKUM: TEMPLE U FROM THE NORTHEAST, AND MOUND 35.



2, NAKUM: TEMPLE V; FRONT OR WESTERN FAÇADE AND MOUNDS 45 AND 46.



1, NAKUM: TEMPLE U; BACK OR EASTERN FAÇADE.



2, NAKUM: TEMPLE V; BACK OR EASTERN FAÇADE.



1, STRUCTURE G, PORTION OF MASK ON SOUTHERN WALL.



2, STRUCTURE L; MASK ON EASTERN END OF BUILDING.



3, TEMPLE N, SOUTHERN ANNEX, UPPER CHAMBER, TIE-HOLE.



4, TEMPLE E; BENCH IN CHAMBER, SHOWING DEPRESSION.



5, TEMPLE N; SOUTHERN ANNEX, UPPER CHAMBER, CUPBOARD DEPRESSION.



1, NAKUM: STELA C.



2, NAKUM: STELA U.



EL ENCANTO: STELA, NORTHERN SIDE.

E 51.H336 v.5, no.1
Explorations
can over
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